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ABSTRACT

Data on medical student indebtedness and career plans that were collected as part of the AAMC's "Survey of How Medical Students Finance Their Education, 1974-1975" is analyzed. The data sample consisted of anonymous questionnaires received from 15 percent of the total enrollment at 110 U.S. medical schools. The variables included in the analysis are: demographic and background characteristics of students, initial indebtedness, anticipated indebtedness on graduation, specialty area, career activity preferences, planned residency training, geographic location preferences, and interest in physician shortage area practice. It was found that (1) students anticipating greatest indebtedness tend to be women, minority group members, married with children, from small towns or rural areas, and from lower income families; (2) students interested in primary care or underserved area careers tend to be women, married with children, from small towns or rural areas, and from lower income families; (3) few significant relationships exist between indebtedness and preferred career plans when studied without regard to extreme levels of indebtedness or other personal characteristics; and (4) the relationships between indebtedness and career plans are somewhat higher when the focus is on students with a high level of indebtedness and when other selected personal characteristics are considered. Data are presented in narrated tabular form. (Author/MSE)

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Studies of Medical Student Financing

Medical Student Indebtedness and Career Plans, 1974-1975

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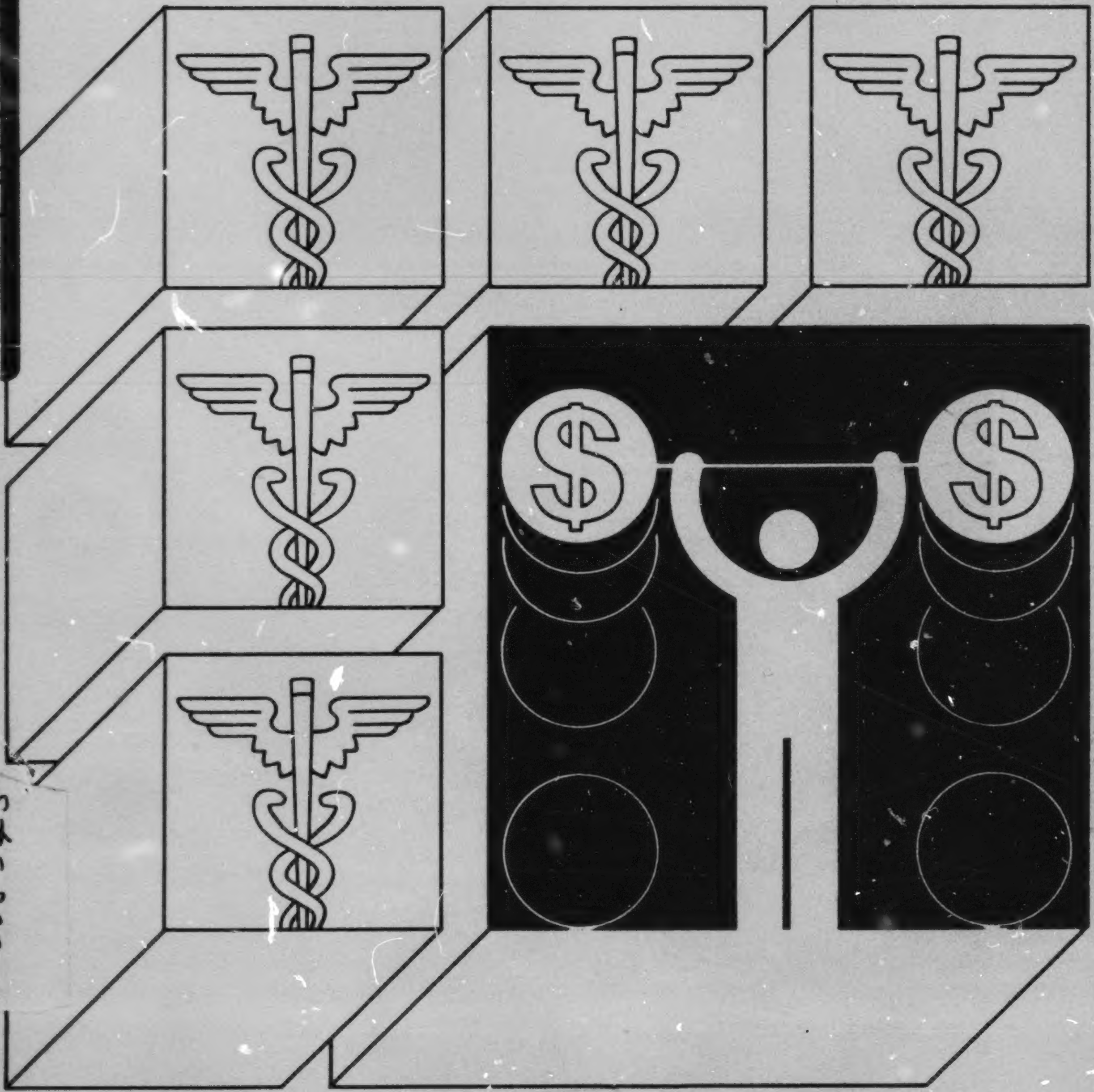

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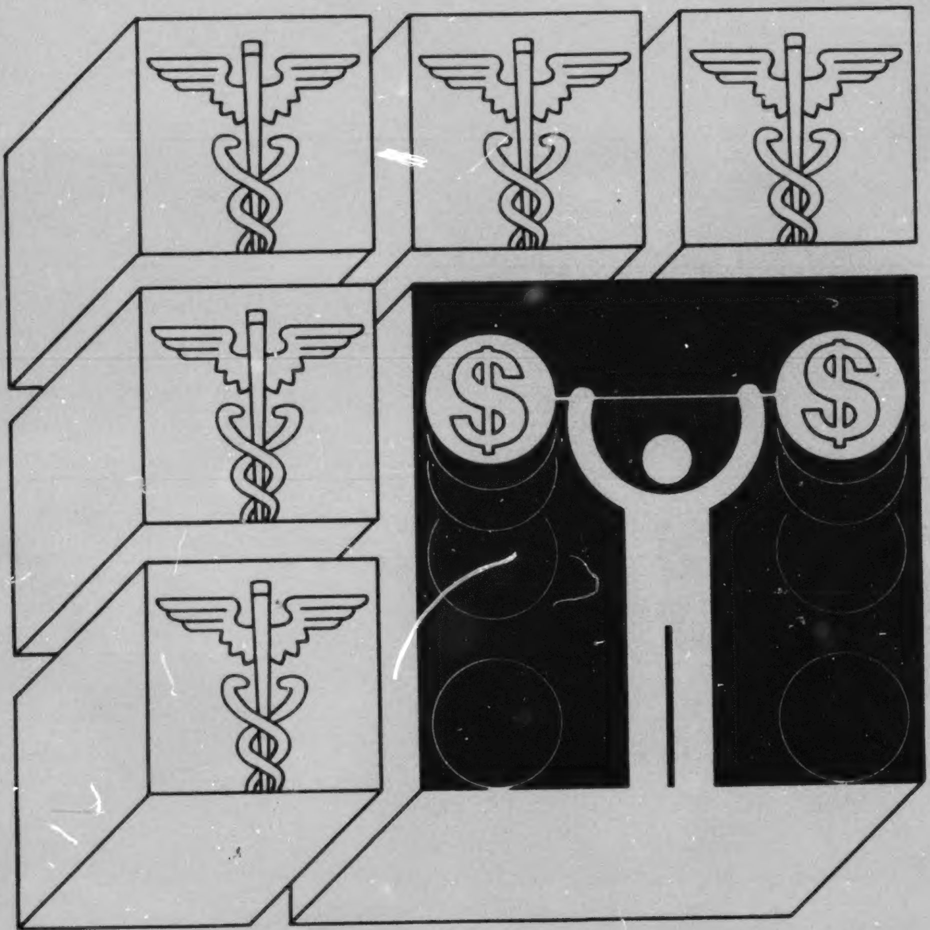

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STUDIES OF MEDICAL STUDENT FINANCING

MEDICAL STUDENT INDEBTEDNESS AND CAREER PLANS

1974 - 1975

Richard E. Mantovani
Travis L. Gordon
Davis G. Johnson, Ph.D.

OTHER STUDIES IN THIS SERIES

Survey of How Medical Students Finance Their Education, 1974-75
Medical Student Finances and Personal Characteristics, 1974-75
Medical Student Finances and Institutional Characteristics, 1974-75

Division of Student Studies

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

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Executive Summary

This report extends the analysis of the data on medical student indebtedness and career plans that was collected by the Association of American Medical Colleges (AAMC) as part of the "Survey of How Medical Students Finance Their Education, 1974-75." The unique data base was derived from a representative national sample of 7,261 anonymous questionnaires, which included 15 percent of the total enrollment at each of the 110 U.S. medical schools participating in the survey. The questionnaires were sent to the medical schools in April and were completed by most respondents in early May of 1975.

Purpose

The major purpose of the study was to provide information that would aid in planning future medical student financing. Specific objectives of this extended analysis were:

(a) To identify the characteristics of those students who incur a significant amount of debt prior to graduation from medical school;

(b) To describe the characteristics of students with various career plans, particularly of those individuals aiming for primary care specialties and expressing an interest in practicing medicine in underserved geographical areas;

(c) To identify the significant relationships, if any, that exist between mean medical student indebtedness and preferred career plans; and

(d) To discover any special relationships that might exist between a high level of indebtedness, selected student characteristics and interest in primary care and/or shortage area careers.

Methodology

To accomplish the above objectives, the 7,261 representative questionnaires were analyzed to reveal relationships between:

(1) Indebtedness and student characteristics (regardless of career plans)

(2) Student characteristics and career plans (regardless of debt)

(3) Indebtedness and career plans (regardless of student characteristics)

(4) High indebtedness, student characteristics and career plans.

The major student characteristics analyzed were sex, race/ethnicity, marital status, size of hometown, and parental income. These variables were studied both separately and in combination (e.g., concurrently by size of hometown and parental income). The race/ethnicity categories used were (a) white/Caucasian, (b) black/Afro-American, (c) other underrepresented minorities (i.e., American Indian, Mexican-American and Mainland Puerto Rican), and (d) other ethnic groups (e.g., Oriental-American and Cuban).

Although indebtedness upon entrance to medical school and anticipated debt upon graduation were both considered, primary emphasis was put on the latter variable. In addition to studying the proportion of students in debt and their average amount of indebtedness, special analyses were also made of three almost equal-sized groups of respondents with (a) no anticipated debt upon graduation, (b) anticipated debt of $10,000 or less and (c) anticipated debt of more than $10,000.

Career plans included (a) major career activity, (b) practice environment, (c) specialization, (d) years of expected residency training, (e) geographic area of location, and (f) interest in physician shortage area practice. Special attention was paid to plans for primary care and shortage area service.

Because of the greater reliability of the anticipated indebtedness and the career plans of students in their final year of medical school, some separate analyses were carried out for this group of respondents.

Most of the analyses were produced with the use of the Statistical Package for the Social Sciences (SPSS). Chi square and other tests were applied to assess the statistical significance of the relationships discovered between student characteristics, indebtedness and career plans.

Limitations of Study

In interpreting the findings of this study, the following limitations should be kept in mind:

(a) Women, blacks, and intermediate-year students were slightly underrepresented in the study sample.

(b) The costs of obtaining an M.D. degree have increased substantially, and the amount of available financial aid has decreased significantly since the survey year of 1974-75.

(c) The anticipated indebtedness and career plan variables are both based on the respondents' future projections rather than on their actual debts and actual career patterns and are thus most reliable for the senior students.

(d) Career choice is a complex and gradual decision process involving a large number of factors of which anticipated indebtedness at graduation from medical school is only one factor.

Major Findings

Recognizing the above limitations, highlights of the findings related to each of the four major study objectives are summarized below.

Indebtedness and Student Characteristics (regardless of career plans)

1. One-third (35 percent) of the 1974-75 medical students in the study sample were in debt when they entered medical school. The average size of these initial debts was $2,923. Two-thirds (67 percent) of the study sample expected debts averaging $11,573 by the time they received the M.D. degree.

2. Although the majority of all medical student groups analyzed in this study (except those from families earning over $50,000 per year) expected to have substantial debts at graduation, those anticipating the largest indebtedness tended to be: (a) women ($12,521), (b) minority group members (e.g., $13,264 for blacks and $13,406 for other underrepresented minorities), (c) married with children (e.g., $15,016 if two or more children), (d) from small towns or rural areas ($12,002), and (e) from lower-income family backgrounds (e.g., $13,576 if income less than $5,000).

Career Preferences and Student Characteristics (regardless of debt)

3. Almost all (94 percent) of the 1974-75 medical students in the study planned to devote the majority of their medical careers to patient care, with the remainder leaning towards research, teaching, and/or administration.

4. Three-fifths (61 percent) of the students planned to specialize in primary care (i.e., Family Medicine/General Practice, General Internal Medicine, General Pediatrics or Obstetrics/Gynecology).

5. Almost a fifth (19 percent) reported an interest in eventually locating in a small town or rural area and only 27 percent expressed a current interest in ending up in a large city or suburb thereof. The remaining 54 percent expected to locate in a city with a population of 10,000 to 500,000.

6. Almost half (48 percent) reported an interest in practicing in a critically underserved physician shortage area. Of these students who expressed a preference, almost three-quarters (72 percent)

preferred a rural setting, and the remaining 28 percent favored an urban locale.

7. Although the majority of all groups analyzed expressed a preference for a primary care specialty, those groups with the highest proportional interest in such careers tended to be: (a) women (65 percent), (b) married men or women with children (e.g., 68 percent if one child), (c) from small towns or rural areas (73 percent), and (d) from lower-income family backgrounds (e.g., 65 percent if income less than $5,000). A slightly higher proportion of whites (61 percent) than blacks (58 percent) expressed an interest in a primary care specialty.

8. While at least 40 percent of all groups analyzed (except those from families earning $50,000 or more per year) indicated an interest in working in a physician shortage area, those groups with the highest proportional interest in such service tended to be: (a) women (60 percent), (b) minority group members (e.g., 79 percent of blacks), (c) men or women with children (e.g., 51 percent of those with one child), (d) from small towns or rural areas (60 percent), and (e) from lower-income backgrounds (e.g. 65 percent if income less than $5,000).

Indebtedness and Career Plans (regardless of student characteristics)

9. When average anticipated debt upon graduation and future career plans were studied without regard to the personal characteristics noted above, there appeared to be little relationship between indebtedness and career plans.

10. Of the eight career variables studied, the only one that showed statistically significant relationships with both the proportion of students in debt and the size of their mean debt was "interest in serving in a physician shortage area." Seniors interested in such a career were somewhat more apt to anticipate higher debts ($10,900) than were seniors not interested in shortage area service ($9,548).

High Indebtedness, Student Characteristics and Career Plans

11. Of the two-thirds of students who anticipated being in debt at graduation, 30 percent expected debts of $15,000 or more, 15 percent anticipated $20,000 or above and 3 percent foresaw debts of at least $30,000. For all students in the study sample, approximately a third anticipated graduation debts of more than $10,000, another third expected debts of $10,000 or less, and the remaining third foresaw no indebtedness at the time of graduation.

12. When the above three categories of indebtedness were compared with student interest in primary care, the relationship between indebtness and such career plans appeared to be somewhat stronger than that for mean indebtedness but still not very striking. For example, 64 percent of students with anticipated debts of over $10,000 were interested in primary care specialties as compared with 62 percent of those with debts of $10,000 or less and 55 percent of those with no anticipated debts at graduation.

13. When the personal characteristics of students in the extreme thirds of the above indebtedness categories were studied, several student groups showed a fairly sizeable differential in the proportion interested in primary care careers. These groups included students who were male, single or married without children, from large cities, and from higher-income families. For the above groups, primary care interest was 8 to 15 percent greater for students with high debts.

14. The strongest relationship between level of indebtedness and career plans was found for interest in physician shortage area practice. For example, 54 percent of the high-debt (over $10,000) students were interested in such practice, compared with 48 percent of low-debt ($10,000 or under) and 41 percent of those expecting no debt at time of graduation.

15. A larger proportion of essentially all student groups expressed an interest in shortage area service if they expected a high level of indebtedness (over $10,000) than if they expected no debt at graduation. The largest differentials were for students who were male, white, married, from cities and from middle-income families. For these groups, the differentials in shortage area interest ranged from 11 to 21 percent higher for students with high debts (over $10,000) than for comparable students with no debts.

Conclusions

Based on the above findings, the following conclusions can be drawn in relation to the specific objectives listed under the "Purpose" section of this Executive Summary:

(a) Students anticipating the largest amount of debt prior to graduation from medical school tend to be women, minority group members, married with children, from small towns or rural areas and from lower-income families.

(b) Similarly, students interested in primary care and/or underserved area careers also tend to be women, married with children, from small towns or rural areas and from lower-income backgrounds. Minority group members showed higher than average proportional interest in shortage area service but a slightly larger proportion of whites than blacks expressed an interest in primary care.

(c) Few significant relationships exist between medical student indebtedness and preferred career plans when studied without regard to extreme levels of indebtedness or to other personal characteristics. The only career variable showing statistically significant relationships with both the proportion of all students in debt and the mean size of their debt was "interest in serving in a physician shortage area."

(d) The relationships between indebtedness and career plans are somewhat higher when the focus is on students with a high level of indebtedness and when other selected personal characteristics are considered. Even with this type of analysis, however, the differences in proportions of "high debt" and "no debt" students planning certain careers only varied an average of 9 percent for interest in primary care and 13 percent for an interest in shortage area service.

In view of all the above, it appears that career choice is probably more closely related to a student's general background than to the degree of indebtedness he or she anticipates at the time of graduation from medical school. In general, individuals most likely to be interested in primary care and/or shortage area careers tend to be women, minority group members, from small towns or rural areas, and from lower-income family backgrounds.

I. INTRODUCTION

During the 1974-75 school year, the Association of American Medical Colleges (AAMC) conducted a survey of U.S. medical students in order to collect information on how students finance their education. An AAMC report describing findings from this survey was submitted to the NIH Bureau of Health Manpower (BHM) in December 1975.* That summary report was primarily an update of three previous studies on medical student finances based on surveys conducted in 1963-64, 1967-68, and 1970-71.† Pursuant to the 1976 contract with BHM, the AAMC was to extend the analysis of data collected in 1975 on medical student indebtedness and career plans. The following report summarizes these additional findings.

In designing the present study, the writers sought to provide information of use in solving two problems of mutual concern to both BHM and the AAMC. First, in view of increasing tuition costs in U.S. medical schools and decreasing availability of financial aid for medical students, the study would provide information to help both the federal government and the medical schools in planning future student financing. Secondly, the findings would be useful in effecting governmental and institutional goals for a more heterogeneous medical student and physician population which would deliver the types of health care most needed by our society.

With these purposes in mind, the research had four major goals:

1. To identify the characteristics of those students who incur a significant amount of debt prior to graduation from medical school;

2. To describe the characteristics of students with various career plans, particularly of those individuals aiming for primary care specialties and expressing interest in practicing in underserved areas;

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* Association of American Medical Colleges, Survey of How Medical Students Finance Their Education, 1974-75, (Washington, D.C.: Association of American Medical Colleges, 1975).

† U.S. Department of Health, Education, and Welfare, Public Health Service, How Medical Students Finance Their Education, PHS Publication No. 1336 (Washington, D.C.: U.S. Government Printing Office, 1965).

† U.S. Department of Health, Education, and Welfare, Public Health Service, How Medical Students Finance Their Education, PHS Publication No. 1336-1 (Washington, D.C.: U.S. Government Printing Office, 1970).

† U.S. Department of Health, Education, and Welfare, Public Health Service, How Medical Students Finance Their Education, DHEW Publication No. 75-13 (Washington, D.C.: U.S. Government Printing Office, 1974).

3. To identify the significant relationships, if any, that exist between general medical student indebtedness and preferences for certain medical careers; and

4. To discover any special relationships that might exist between a high level of indebtedness, selected characteristics, and interest in primary care and/or shortage area careers.

Of particular interest were career plans which address the current geographic and specialty maldistribution problems. Therefore, as indicated above, emphasis is on students who plan careers in primary care specialties and anticipate eventual location in critically underserved geographic areas.

The composition of the sample of medical students used for the study generally compares favorably with the composition of the 1974-75 U.S. medical school population. Statistical analyses of the indebtedness figures compiled from the sample data indicate that dollar amounts presented are in most cases representative of the financial condition of medical students enrolled during 1974-75. These data are valuable in describing which student characteristics or career plans are associated with relatively higher debts. However, in no case should these debt figures be used to describe the actual amount of debt for students enrolled at a later date in U.S. medical schools. As discussed in Section F of the methodology, inflation and increases in tuition since the spring of 1975 have no doubt increased these dollar amounts considerably.

Findings from the study are presented in the "Results and Discussion" part of the report in four major sections. In Section A, data on the relationships between indebtedness and student characteristics are analyzed. The possible relationship of certain career preferences to these student characteristics is explored in Section B. This is followed by comparisons of the mean indebtedness associated with specific career preferences in Section C. Finally, in Section D, preferences for primary care and shortage area practice among students anticipating large amounts of debt at graduation are compared with those same preferences among various categories of students anticipating no debts.

These findings are expected to serve as a base for further analyses of medical student finances to be conducted by the AAMC under the 1976 BHM contract. These will include (a) a study of factors (including financial independence) related to medical student application for and receipt of financial aid and (b) an analysis of the possible association between medical student finances and institutional characteristics.

This report was prepared by Richard e. Mantovani and Travis L. Gordon of the AAMC Division of Student Studies and by Davis G. Johnson, Ph.D., Division Director.

II. METHODOLOGY

A. Data Sources

Data for this study were collected in the Survey of How Medical Students Finance Their Education, conducted by the Association of American Medical Colleges (AAMC) in the spring of 1975. A total of 23,233 questionnaires were distributed to a representative and anonymous sample of the 53,554 students enrolled in U.S. medical schools during the 1974-75 academic year. Of these, 11,552 questionnaires (49.7 percent) were returned by students from 110 schools.*

Because the return rate of questionnaires varied from school to school, bias due to differences between schools might have resulted if not corrected for. To prevent this possible bias, a subsample of 7,261 students--approximately 15 percent from each school--was selected for this study. For this "national" sample, Appendix A gives the number of students selected from each of the participating schools.

In order to assess the accuracy of students' responses to the financial aid questions, a subsample of 417 students was monitored by school officials using financial aid records. (See Appendix A for the number of monitored and non-monitored students from each school.) The verified responses of the monitored subsample were statistically compared with the unverified responses of non-monitored students. This procedure yielded information on the reliability of the data for the total 7,261 students in the national sample. (The results of this comparison are given in the appendix of the 1975 BHM report, "How Medical Students Finance Their Education, 1974-75.") Of particular interest to this study was the finding that the total amount of loans and other repayable funds of the monitored and non-monitored students were highly similar. For example, Table A-27 showed that each group obtained 16% of its 1974-75 income from refundable sources and Table A-28 indicated that both the percent of students with loans and their average amount were very close for the monitored and non-monitored groups.

Comparisons of the survey data with other sources (e.g. the AAMC-AMA Liaison Committee on Medical Education Annual Questionnaire) indicate that it gives a reasonable summary of the financial condition of U.S. medical students in 1974-75. However, due to the underrepresentation of blacks and women in the sample, the data in the present study may present a rather conservative picture of the actual financial needs of these students.

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* For various reasons, the following U.S. medical schools did not participate in the survey: Harvard Medical School, State University of New York at Stony Brook School of Medicine, University of Utah College of Medicine, Vanderbilt University School of Medicine, University of Vermont College of Medicine, and Yale University School of Medicine. Fortunately, these schools are from various regions of the country and include both public and private institutions.

B. Survey Instrument

The instrument used in the survey includes items on the demographic and background characteristics of medical students, the amount and the sources of income, indebtedness, employment, and career plans (See Appendix B). In this study, the focus is on the interrelationships between (1) student demographic and background characteristics, (2) indebtedness, and (3) career plans. The major variables studied and the ways in which they were analyzed are described below.

C. Major Study Variables

1. Student Demographic and Background Characteristics

In this study, medical students were aggregated by two distinct sets of personal characteristics. The first set describes students by race/ethnicity, sex, and marital status; the second, by size of hometown and parental income. Thus, in addition to the effect of each separate characteristic, the relationships of these two combinations of characteristics to indebtedness and career preferences are analyzed.

2. Indebtedness

Students estimated the amount of debt upon entrance to medical school (initial debt) and the amount anticipated upon graduation (anticipated debt). The importance of initial debts lies in their use as a base from which subsequent medical school debts might be predicted. Anticipated debts for final-year students, the population of greatest interest relative to their career choices, gives the most accurate estimate of actual indebtedness incurred in obtaining an M.D. degree in 1974-75. Finally, anticipated debts of students in other classes provided information on the financial requirements perceived for completion of medical school.

The proportion of students with initial and anticipated debts and the mean amounts of these debts are examined. In addition, special attention is devoted to those students anticipating substantial debts (i.e., debts greater than $10,000) in order to ascertain whether these high-debt students differ from other medical students regarding their characteristics and their specific career preferences.

3. Career Plans

As shown in Appendix B, the questionnaire included items on the following career plans: (a) major career activity, (b) practice environment, (c) specialization, (d) length of residency training, (e) geographic area of eventual location, and (f) interest in physician shortage area practice. In responding to these items, students indicated "preferences" for specific career paths. Since these may change as the student progresses through medical school and residency training, they are limited as predictors of eventual career destinations. Such preferences are apt to be less tenuous for final-year students than for students in earlier years. For this reason, separate analyses are in some cases performed for the career decisions of students in their senior year of medical school.

However, aggregate data on these career preferences for students in all years can be used to identify relationships between specific career options and those factors that might be highly related to such choices (indebtedness, for example). In order to focus more closely on such relationships, students indicating no particular career preference (i.e., "undecided" responses and "no responses") have been excluded from such analyses.

Of particular interest in this study are those career plans involving primary care specialties and a preference for service in physician shortage areas, since these most directly serve to alleviate the current problems of geographic and specialty maldistribution of the nation's physician manpower. Attempts are made to identify the demographic and background characteristics of students most likely to choose these career paths and to determine their indebtedness.

D. Production of Tables

The cross-tabulations and other data elements needed to conduct the analysis were produced through the packaged program known as the Statistical Package for the Social Sciences (SPSS). Because of our wish to present the data in more easily interpretable form and to direct readers to the crucial issues mentioned above, the information generated by the program was reduced to the form presented in the report. To further improve the clarity of the data display, rank order listings were used in some cases to compare demographic and background characteristics. These proved to be particularly helpful in detecting interactions (the relationships of 2 or 3 variables in combination) in the data.

E. Statistical Analysis

For a detailed presentation of the statistical techniques employed in this study, the reader should consult those sources appearing in the "statistical" section of the list of references. The following simplified explanation of these statistical techniques is provided for those readers with little or no knowledge of statistics.

In order to determine the significance of certain findings in this study, a number of statistical tests were employed. These tests estimate the probability that a distribution or a difference observed in the data occurs by chance and therefore is insignificant.

Chi-square (χ^2) statistics, which are given at the bottom of most tables, make possible an estimation of this chance occurence in cross-tabulated data. For example, in Table 16 of this study, the number and proportion of students preferring each of the four primary care specialties is given for each of four ethnic groups. The variations observed may be due to chance or they may reflect significant differences in specialty preference among ethnic groups. The χ^2 statistic, in this case, states that the probability (p) is less than .05 (5 percent) that this particular distribution would occur by chance if there were actually no relationship between specialty preference and ethnicity. We therefore conclude that signigicant differences do exist among ethnic groups regarding their choice of primary care specialty--i.e., "dependency" exists between the two sets of variables. (When this probability is greater than .05, we accept the "null hypothesis"--i.e., the two variables are independent and differences observed in the table are not significant.

In assessing the significance of differences between two mean amounts of debt, a t statistic is employed. The significance of variation among three or more means is tested through an Analysis of Variance (ANOVA), using an F test. As with the χ^2 statistic, the t and F tests yield estimates of probability (p)--the probability that the observed differences might occur by chance. If the probabilities are less than .05, we may assume that these differences and variations reflect significant distinctions in mean debt. Again, if the probability is more than .05, we accept the null hypothesis.

F. Limitations of Study

Inferences drawn from this study, as in all studies, are limited by the type of sample drawn, the measures used, and the number and type of returns received. Before proceeding to the results and discussion, the following limitations of this study should be emphasized:

1. Comparisons of the data in the national sample with the total population of medical students in 1974-75 reveal that certain groups are slightly under or overrepresented. In particular, women and blacks tended to be underrepresented, while men, white/Caucasians and students classifying themselves as other than "black" or "white" tended to be overrepresented. In addition, students in their first year of medical school tended to be overrepresented while those in their intermediate years tended to be underrepresented.*

2. A second limitation involves the use of this data to represent the current or future financial situation of medical students. Since 1974-75, the academic year covered by the survey, there have been sizeable increases in tuition and in other costs of obtaining an M.D. degree. In addition, financial aid available to students has been decreasing. These changes can be assumed to have raised both the

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* Further information on these statistical comparisons appear in "How Medical Students Finance Their Education, 1974-75."

proportion of students in debt and the mean indebtedness of these individuals. Therefore, the anticipated indebtedness reported in this study is undoubtedly a substantial underestimate of current levels of medical student indebtedness. Unless there are significant improvements in the student aid picture, these data also underestimate future indebtedness.

3. Unless medical student financing improves, it is also possible that self-selection and/or admissions decisions will result in significant changes in the characteristics of enrolled students. Specifically, future medical student populations might come, to an even greater extent than during 1974-75, from white, high-income, urban backgrounds.

4. The two variables of greatest interest in this study are anticipated indebtedness and career plans, both of which are based on a student's projections of his/her future. Therefore, these measures can be presumed to be least accurate for students in the earlier years of medical school and most accurate for those in their final year during 1974-75. For complete accuracy concerning these two variables, however, follow-up data would have to be gathered after students had actually graduated and entered a specific career.

5. It must be remembered that career choice is a complex process involving numerous factors related to a student's socioeconomic background, current status, future goals, social trends (e.g.: malpractice insurance), etc. Indebtedness is only one of the many factors which may enter into this decision-making process.

6. Indebtedness is only a partial measure of a student's total financial situation. Other indicators, such as current and anticipated income and expenses, may be more important financial factors influencing career plans.

All of the above limitations should be kept in mind when interpreting the results that are presented and discussed in the following section of this report.

III. RESULTS AND DISCUSSION

A. Indebtedness and Student Characteristics

For the 1974-75 academic year, approximately 50 percent of the students in U.S. medical schools received financial aid in the form of loans. For many of those students, these funds comprised most if not all of their available income. In addition to the indebtedness resulting from these loans, 35 percent of all medical students had also incurred debts prior to entering the M.D. program in order to finance their undergraduate college years. Substantial further indebtedness was anticipated prior to graduation from medical school.

Of the 7,261-student sample analyzed in this study, 4,859 students (67 percent) anticipated debts upon graduation from medical school. As indicated in Table 1-A, the mean debt for these students was $11,573. (The data used in constructing this cumulative frequency distribution appear in Appendix C.) However, approximately 30 percent of them anticipated debts of $15,000 or more, and 15.4 percent expected debts of $20,000 or more at graduation from medical school. The relationship between relatively large amounts of indebtedness and career decisions is analyzed in detail in Section D.

It is the purpose of Section A to report (a) the proportions of medical students with various demographic and background characteristics who were indebted and (b) the mean debt of these students. In Part 1 of this analysis, both initial and anticipated debts are analyzed for the individual demographic and background characteristics shown in Table1-B. Parts 2 and 3 deal with the indebtedness of students grouped by various demographic and background characteristics. (Explanations of these groups appear in the methodology section, and definitions are included in the Glossary.) Part 2 also contains a comparison of the initial debts of first and final-year students. Part 3 compares differences in anticipated indebtedness between students in three-year and four-year curricula.

1. Indebtedness by Individual Demographic and Background Characteristics

Table 1-B gives the proportions of students with debts upon entering medical school and the proportions anticipating debts upon graduation. It also shows the mean amount of each of these debts for students with selected demographic and background characteristics.

a. *Sex*

As the data in Table 1-B show, there were no statistically significant differences in initial indebtedness for men and women.

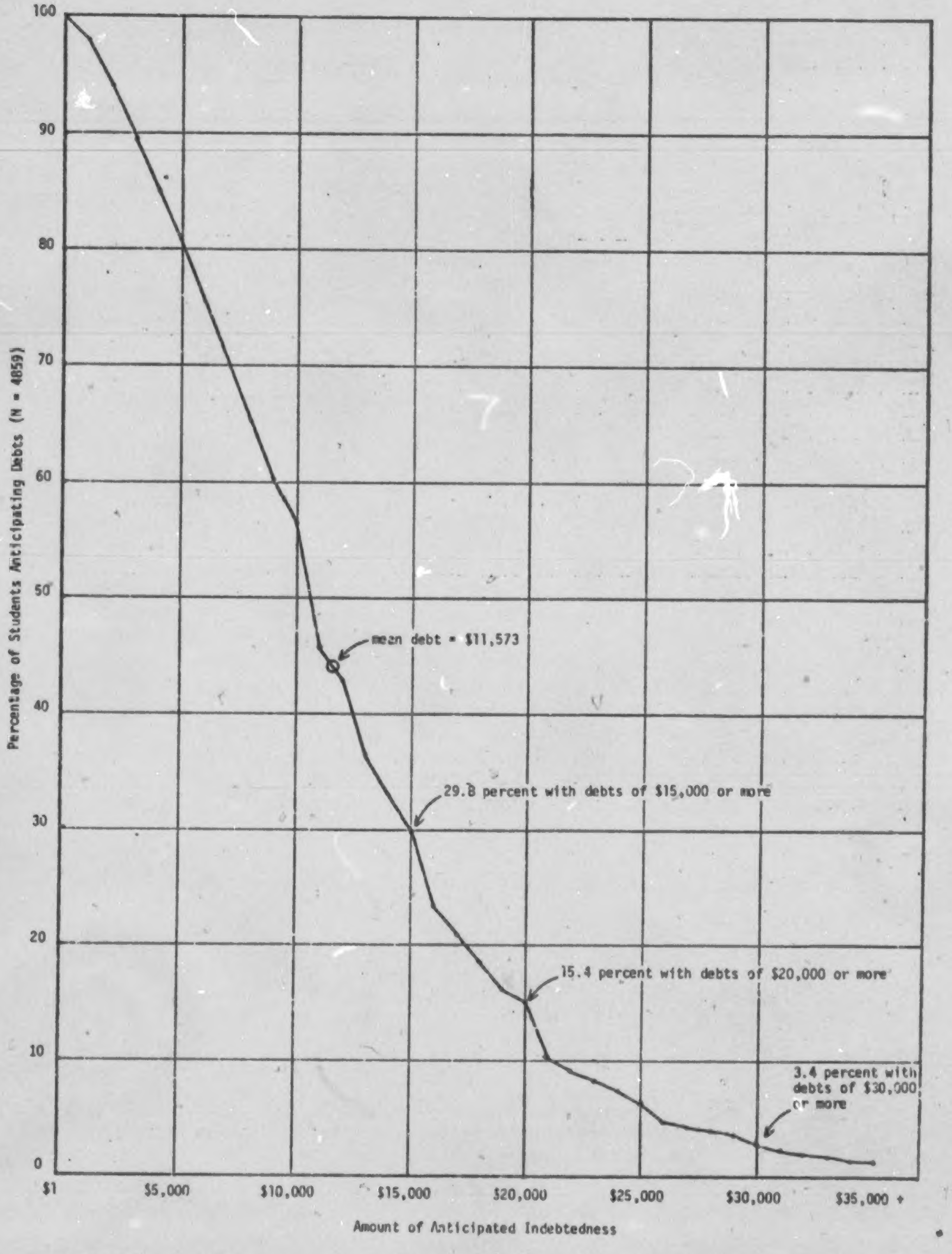

Table 1-A: Cumulative Frequency Distribution of Pre-Graduation Indebtedness Anticipated by U.S. Medical Students, 1974-75 (Cumulated Downward)

Table 1-B
Medical Student Indebtedness by Demographic and Background Characteristics, 1974-75

Demographic and Background Characteristics	Max. Total N	Initial Debt		Anticipated Debt		Ratio of Anticipated Debt to Initial Debt	
		Proportion in Debt	Mean Debt	Proportion in Debt	Mean Debt	Proportion in Debt	Mean Debt
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ALL STUDENTS	7,261	34.5	$2,923	66.9	$11,573	1.94	3.96
Sex:				†	*		
Men	5,993	34.5	2,924	66.2	11,370	1.92	3.89
Women	1,237	35.0	2,926	70.9	12,521	2.02	4.28
Race/Ethnicity:		†		†	**		
White/Caucasian	6,447	32.8	2,935	65.9	11,402	2.01	3.88
Black/Afro-American	296	66.2	3,100	85.8	13,264	1.30	4.28
Other Underrepresented	106	52.8	2,454	81.1	13,406	1.54	5.46
Other Ethnic Groups	412	34.0	2,670	66.0	12,072	1.94	4.52
Marital Status:		†	**	†	**		
Single	4,498	31.3	2,769	64.6	11,415	2.06	4.48
Married, no children	2,113	37.0	3,025	68.0	9,366	1.84	3.10
Married, one child	412	48.1	2,978	80.1	11,806	1.67	3.96
Married, 2 or more children	238	50.4	3,964	78.6	15,016	1.56	3.79
Size of Hometown:		†	**	†	**		
Large City	3,188	31.0	2,781	64.9	11,776	2.09	4.24
Medium or Small Sized City	2,698	34.9	2,931	66.3	11,085	1.90	3.78
Small Town or Rural Area	1,359	42.0	3,152	73.2	12,002	1.74	3.81
Parental Income:		†		†	**		
Less than $5,000	404	55.9	2,906	88.1	13,576	1.58	4.67
$5,000 - 9,999	728	55.6	3,080	84.2	12,321	1.51	4.00
$10,000 - 19,999	2,352	45.2	2,872	80.3	11,406	1.78	3.97
$20,000 - 29,999	1,552	31.3	2,805	68.6	11,212	2.20	4.00
$30,000 - 49,999	1,086	17.6	2,985	50.2	10,927	2.85	3.66
$50,000 or more	939	8.2	3.242	29.0	10,770	3.53	3.32

* $t = 3.874$ $p < .05$

** Using F Test, $p < .05$

† $p(\chi^2 > \chi^2 df) < .05$

Approximately thirty-five percent of students of both genders entered medical school with debts. The mean amount of debt for these students was approximately $2,900.

Regarding indebtedness anticipated upon graduation from medical school, however, the proportion of women (71 percent) was significantly higher than that for men (66 percent). As column 6 indicates, the mean debt anticipated by women was also greater, exceeding that for men by $1,151.

Columns 7 and 8 give the relative changes in the proportion of students in debt and in their mean debt from entrance to anticipated graduation from medical school. For example, the ratio of males with anticipated debts to males with initial debts was 1.92 (66.2 ÷ 34.5), showing almost a two-fold rise in the proportion of male students incurring debts while in medical school. The comparable ratio for women was 2.02, which indicates a slightly larger change from entrance to graduation.

The relative change in mean debt was also larger for women (4.28) than men (3.89), indicating that the anticipated amount needed to finance medical school increased more for women than for men.

b. *Race/Ethnicity*

Compared with other ethnic groups, substantially larger proportions of blacks and "other underrepresented" students entered medical school with indebtedness. Almost two-thirds of blacks sampled (66.2 percent) and over one-half of "other underrepresented" students (52.8 percent) were in debt upon entrance. These compare with only 32.8 percent of whites and 34.0 percent of "other" ethnic groups. The mean amounts of these debts (column 4) ranged from $2,454 from "other underrepresented" students to $3,100 for blacks.

For debts upon graduation, again blacks and "other underrepresented" students were highest (85.8 and 81.1 percent, respectively). Though still lower, the proportion of whites and "other" ethnic groups in debt rose to approximately twice the level observed upon entrance.

As the ratios in column 7 show, the increase in the proportion of students incurring debt was larger for whites and "other" ethnic groups. However, in column 8, the increase in amount of debt for whites is less than that for the other groups. Therefore, although a majority of white students expected to borrow, funds contributed by parents and other nonrepayable funds may lessen their need to borrow as much as those groups that are more apt to be financially disadvantaged.

c. *Marital Status*

The proportion of those in debt and the amount of this debt would be expected to increase with familial obligations. This hypothesis is supported by the data presented in Table 1-B. As shown in column 3, about one-third of single students indicated that they were in debt upon entrance to medical school. This proportion increased with familial obligations to just over 50 percent for married students with two or more children. As shown in column 5, this same general trend was true for anticipated debts.

Although this direct relationship between indebtedness and marital status (by number of dependents) was true with regard to the amount of debt, a notable departure is evident in column 6. Married students with no children had substantially lower anticipated debts than single students or married students with children. Obviously, a married medical student with no children and a spouse who works would experience less financial need than students in the other categories.

d. *Size of Hometown*

As the data in columns 3 and 4 indicate, indebtedness generally increased as size of hometown decreased, with significantly larger proportions of rural students than those from urban areas experiencing debts. The mean amounts of these debts, both initial and anticipated, were also significantly higher for rural students.

e. *Parental Income*

As expected, both the proportion in debt and the mean amount of debt decreased as parental income increased. With respect to initial debt, only 8.2 percent of those with parental incomes of $50,000 or more were in debt. For students with parental incomes of less than $5,000, however, this proportion increased to 55.9 percent. For anticipated debt, the comparable range was from 29.0 percent to 88.1 percent.

Table 2

Number and Proportion of Medical Students from Various Demographic Groups

with Initial Debts and Mean Amount of These Debts for First and Final-Year Students, 1974-75

Demographic Groups	First Year (Entering in 1974)			Final Year (Entering in 1971 and 1972)		
	Students with initial debts†		Mean** Debt	Students with§ initial debts		Mean†† Debt
	No.	%		No.	%	
ALL STUDENTS *	801	35.8	$3,041	536	32.0	$2,769
WHITE/CAUCASIAN						
Men	536	34.1	3,036	402	31.0	2,863
Women	137	35.1	3,246	52	26.0	2,200
BLACK/AFRO-AMERICAN						
Men	37	59.7	2,886	24	64.9	3,318
Women	26	72.2	3,042	11	84.6	3,049
OTHER UNDERREPRESENTED						
Men	16	57.1	2,936	11	64.7	1,639
Women	4	33.3	2,113	2	33.3	2,175
OTHER ETHNIC GROUPS						
Men	33	33.7	2,262	27	32.5	2,327
Women	11	36.7	4,320	2	40.0	2,525

* Includes students with initial debt who did not respond to question on gender.

† $\chi^2=44.06(7df)$, $p < .05$

§ $\chi^2=47.31(7df)$, $p < .05$

** $F=0.88(7,792)$, $p > .05$

†† $F=0.77(7,523)$, $p > .05$

2. Initial Indebtedness by Combinations of Demographic and Background Characteristics

a. *Trends (A Comparison of First and Final-Year Students)*

Trends in the amount of debt upon entrance to medical school and in the proportion of students with such debts are observable between first and final-year classes in Table 2 (for demographic groups) and Table 3 (for hometown/income groups). Data in these tables show that a slightly larger proportion of students entered medical school in 1974 (35.8 percent) with debts previously incurred than did students entering in 1971 or 1972 (32.0 percent).*

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* Most final-year students (in 1974-75) who were enrolled in four-year programs entered medical school in 1971. Most of those in the final year of a three-year curricula entered in 1972.

Table 3

Number and Proportion of Medical Students from Various Hometown/Income Groups with Initial Debts and Mean Amount of These Debts for First and Final-Year Students, 1974-75

Hometown/Income Groups		First Year (Entering in 1974)			Final Year (Entering in 1971 and 1972)		
		Students with initial debts†		Mean** Debt	Students with initial debts§		Mean†† Debt
		No.	%		No.	%	
All Students*		801	35.8	$3,041	536	32.0	$2,769
Size of Hometown	Parental Income						
Large city or suburb of large city (500,000 or more)	Less than $5,000	28	45.2	2,741	22	59.5	2,136
	$5,000 - 9,999	49	55.1	3,305	28	44.4	2,370
	$10,000 - 19,999	131	47.0	3,023	95	41.7	2,639
	$20,000 - 29,999	76	31.1	2,737	37	27.4	2,740
	$30,000 - 49,999	36	18.9	2,388	13	11.6	2,365
	$50,000 or more	14	9.0	4,010	5	4.9	3,620
Medium or small-sized city (10,000-500,000)	Less than $5,000	22	71.0	2,666	15	55.6	3,412
	$5,000 - 9,999	35	63.6	3,195	40	58.8	2,658
	$10,000 - 19,999	128	49.0	2,990	96	42.3	2,781
	$20,000 - 29,999	65	32.0	2,498	35	29.7	2,385
	$30,000 - 49,999	19	16.4	2,896	16	15.8	2,305
	$50,000 or more	6	5.7	3,742	6	6.5	1,883
Small town or Rural Area (less than 10,000)	Less than $5,000	15	57.7	4,205	17	58.6	3,371
	$5,000 - 9,999	38	56.7	3,493	19	50.0	2,995
	$10,000 - 19,999	74	52.5	2,972	47	39.8	2,604
	$20,000 - 29,999	32	38.1	3,791	23	38.3	4,822
	$30,000 - 49,999	7	18.9	3,543	5	12.2	2,150
	$50,000 or more	9	25.7	3,132	2	8.3	3,750

* Includes students with initial debts who did not respond to questions on size of hometown or parental income.

† $\chi^2=264.91(17df)$, $p < .05$

§ $\chi^2=198.11(17df)$, $p < .05$

** $F=0.90(17,766)$, $p > .05$

†† $F=0.94(17,503)$, $p > .05$

The mean amount of debt was also larger for 1974 first-year students but may be explained in part by inflation.

The figures in Table 2 reveal that the largest relative increase in students with initial debt occurred for white women (from 26.0 percent of final-year to 35.1 percent of first-year students). However, proportional decreases occurred for black men (from 64.9 percent to 59.7 percent) and black women (from 84.6 percent to 72.2 percent). Decreases also occurred for "other underrepresented" men and "other" ethnic women. Between first and final-year classes, the most notable differences in amount of initial debt were the increases for white women (from $2,200 for those entering in 1971 and 1972 to $3,246 for those entering in 1974) and for "other underrepresented" men (from $1,639 in 1971 and 1972 to $2,936 in 1974).

When these students are grouped by hometown size and parental income (Table 3), there is a high negative relationship between the proportion with initial debts and parental income (for both first-year and final-year students). However, the relationship of the size of this debt to size of hometown and/or parental income shows no clearcut patterns.

b. *Initial Indebtedness for Demographic Groups*

Table 4 ranks demographic groups by the proportion of students with initial debts. These range from a low of 27.3 percent for "other underrepresented" single women to a high of 77.8 percent for black married women. In the total 1974-75 medical student population sampled by this study, blacks and "other underrepresented" ethnic groups ranked highest. The relatively high occurrence of initial debt among these students is further emphasized by the sizable decrease from rank 8 (50.0 percent) to rank 9 (38.8 percent). Also evident is the fact that for a given combination of sex and race/ethnicity, a larger proportion of married students entered medical school with debts than did single students with those same characteristics.

The accompanying rank ordering of initial mean debt for students within each demographic group (Table 5) shows that married students entered medical school with the largest debts. When this table is studied along with the proportional rank ordering in Table 4, however, more comprehensive descriptions are available. It is noteworthy, for example, that white married women have the second largest mean debt although they rank number 11 with regard to the proportions who enter with these debts.

Table 4

Rank Ordering of the Proportions of Medical Students from Various Demographic Groups with Initial Debts, 1974-75*

Percentage	Rank	Race/Ethnicity	Sex	Marital Status
77.8	1	Black	Women	Married
75.0	2	Other Underrepresented	Men	Married
74.3	3	Black	Men	Married
65.4	4	Black	Women	Single
63.8	5	Black	Men	Single
53.8	6	Other	Women	Married
53.1	7	Other Underrepresented	Men	Single
50.0	8	Other Underrepresented	Women	Married
38.8	9	White	Men	Married
38.1	10	Other	Men	Married
36.9	11	White	Women	Married
35.7	12	Other	Women	Single
30.7	13	Other	Men	Single
30.5	14	White	Women	Single
29.3	15	White	Men	Single
27.3	16	Other Underrepresented	Women	Single

* Includes students in all class levels.

Table 5

Rank Ordering of Mean Initial Debts of Medical Students from Various Demographic Groups, 1974-75*

Mean Debt	Rank	Race/Ethnicity	Sex	Marital Status
$5,943	1	Black	Women	Married
$3,901	2	White	Women	Married
$3,835	3	Black	Men	Married
$3,492	4	Other	Women	Married
$3,032	5	Other	Women	Single
$3,014	6	White	Men	Married
$2,875	7	White	Men	Single
$2,830	8	Other Underrepresented	Men	Married
$2,826	9	Other	Men	Single
$2,764	10	Black	Women	Single
$2,617	11	Black	Men	Single
$2,583	12	Other Underrepresented	Women	Married
$2,437	13	White	Women	Single
$2,334	14	Other Underrepresneted	Men	Single
$2,151	15	Other	Men	Married
$1,592	16	Other Underrepresented	Women	Single

*Includes students in all class levels.

c. *Initial Indebtedness for Hometown/Income Groups*

When students are grouped by hometown size and family income, the ranking of the proportions with initial debts shown in Table 6 reveals that parental income is the more important factor in determining the order. As expected, more students from low income families entered medical school with debts.

Table 6

Rank Ordering of Proportions of Medical Students
from Various Hometown/Income Groups with Initial Debts, 1974-75*

Percentage	Rank	Size of Hometown	Parental Income
60.0	1	Small	Less than $5,000
59.4	2	Medium	$5,000 - $9,999
59.2	3	Medium	Less than $5,000
56.5	4	Small	$5,000 - $9,999
52.8	5	Large	$5,000 - $9,999
51.8	6	Large	Less than $5,000
48.7	7	Small	$10,000 - $19,999
46.3	8	Medium	$10,000 - $19,999
43.0	9	Large	$10,000 - $19,999
36.4	10	Small	$20,000 - $29,999
32.1	11	Medium	$20,000 - $29,999
29.3	12	Large	$20,000 - $29,999
18.4	13	Medium	$30,000 - $49,999
17.8	14	Small	$30,000 - $49,999
17.1	15	Large	$30,000 - $49,999
16.5	16	Small	$50,000 or more
7.7	17	Large	$50,000 or more
6.6	18	Medium	$50,000 or more

*Includes students in all class levels.

However, the rank ordering of the mean amount of this initial debt (Table 7) shows a less clearcut pattern by income group. It might be expected that initial debt would decrease as parental income increased, but the practice of students declaring financial independence from their parents in order to qualify for loans for their undergraduate education may tend to equalize the amount of this debt, regardless of parental income.

Table 7

Rank Ordering of Mean Initial Debts of Medical Students from Various Hometown/Income Groups, 1974-75*

Mean Debt	Rank	Size of Hometown	Parental Income
$3,854	1	Small	$20,000 - 29,999
3,414	2	Large	$50,000 or more
3,360	3	Small	$50,000 or more
3,255	4	Small	Less than $5,000
3,126	5	Large	$5,000 - 9,999
3,123	6	Medium	$30,000 - 49,999
3,104	7	Small	$5,000 - 9,999
3,073	8	Small	$30,000 - 49,999
3,019	9	Medium	$5,000 - 9,999
2,919	10	Small	$10,000 - 19,999
2,902	11	Medium	$10,000 - 19,999
2,881	12	Medium	Less than $5,000
2,880	13	Medium	$50,000 or more
2,851	14	Large	$30,000 - 49,999
2,819	15	Large	$10,000 - 19,999
2,683	16	Medium	$20,000 - 29,999
2,561	17	Large	Less than $5,000
2,455	18	Large	$20,000 - 29,999

*Includes students in all class levels.

3. Anticipated Indebtedness by Combinations of Demographic and Background Characteristics

a. *Anticipated Debt for Students in Three and Four-Year Curricula*

In the 1974-75 survey, students were asked to estimate the total debt they expect to have accumulated upon graduation from medical school. Tables 8 and 9 compare this anticipated debt for students in three and four-year curricula. (Ninety-six percent of the students surveyed were in one of these curricula, with the remainder being in six-year or other special programs.)

Table 8

Number and Proportion of Medical Students

Anticipating Debt Upon Graduation and Mean Amount of This Debt

by Demographic Groups and Three and Four-Year Curricula, 1974-75

Demographic Groups	Three-Year Curriculum			Four-Year Curriculum		
	Students Anticipating Debt†		Mean** Debt	Students Anticipating Debt§		Mean†† Debt
	No.	%		No.	%	
ALL STUDENTS*	627	66.3	$11,179	4,010	67.1	$11,541
WHITE/CAUCASIAN						
Men: Single	236	58.1	11,062	1611	62.5	12,340
Married	240	73.2	10,438	1271	69.4	9,849
Women: Single	53	61.6	11,530	455	70.9	12,867
Married	33	76.7	12,950	160	68.1	10,544
OTHER GROUPS						
Men: Single	36	80.0	12,564	233	69.3	12,342
Married	15	75.0	15,555	140	81.4	11,923
Women: Single	8	88.9	12,087	108	77.7	13,031
Married	3	100.0	11,025	20	80.0	13,996

* Includes students anticipating debt at graduation who did not respond to question on gender.

† $\chi^2=30.07(7df)$, $p < .05$

§ $\chi^2=58.48(7df)$, $p < .05$

** $F=1.04(7,616)$, $p > .05$

†† $F=15.10(7,3990)$, $p < .05$

Table 9

Number and Proportion of Medical Students Anticipating Debt Upon Graduation and Mean Amount of This Debt by Hometown/Income Groups and Three and Four-Year Curricula, 1974-75

Hometown/Income Groups		Three-Year Curriculum			Four-Year Curriculum		
		Students Anticipating Debt †		Mean Debt**	Students Anticipating Debt §		Mean Debt ††
		No.	%		No.	%	
	All Students *	627	66.3	$11,179	4,010	67.1	$11,541
Size of Hometown	Parental Income						
Large city or suburb of large city (500,000 or more)	Less than $5,000	23	88.5	14,451	114	85.7	13,690
	$5,000 - 9,999	34	79.1	11,078	175	84.5	12,833
	$10,000 - 19,999	81	76.4	9,546	655	82.6	11,800
	$20,000 - 29,999	54	69.2	10,071	406	68.5	11,415
	$30,000 - 49,999	22	39.3	11,427	230	49.9	11,108
	$50,000 or more	24	28.2	16,592	107	28.9	10,558
Medium or small-sized city (10,000-500,000)	Less than $5,000	16	88.9	14,247	91	88.3	12,509
	$5,000 - 9,999	20	87.0	11,110	185	86.0	12,402
	$10,000 - 19,999	98	77.8	9,719	579	78.5	11,152
	$20,000 - 29,999	55	65.5	9,256	335	69.1	10,778
	$30,000 - 49,999	27	64.3	10,430	169	50.0	10,427
	$50,000 or more	20	34.5	12,710	72	25.4	8,035
Small town or Rural Area (less than 10,000)	Less than $5,000	10	100.0	13,930	86	89.6	13,253
	$5,000 - 9,999	23	74.2	16,139	145	86.3	11,136
	$10,000 - 19,999	59	89.4	11,494	337	81.8	11,757
	$20,000 - 29,999	24	85.7	8,382	139	67.1	13,052
	$30,000 - 49,999	11	73.3	14,154	59	48.0	10,057
	$50,000 or more	5	29.4	11,040	32	35.2	12,034

* Includes students anticipating debt at graduation who did not respond to questions on size of hometown or parental income.

† $\chi^2 = 582.71(17df)$, $p < .05$

§ $\chi^2 = 168.27(17df)$, $p < .05$

** $F = 2.30(17,588)$, $p > .05$

†† $F = 3.35(17,3899)$, $p < .05$

As the "All Students" data in these tables show, both the proportion anticipating debts upon graduation and the average amount of this debt are slightly larger for students in four-year programs. The major finding, however, is that the indebtedness of students in three-year and four-year curricula is much more similar than might have been predicted. This may be due to the fact that although costs are higher for students in four-year programs, they (unlike students in three-year curricula) have more time for summer employment to supplement their incomes.

When these data are broken down by sex and marital status, some surprising differences are observable. Table 8 shows that among white married students, both the proportions anticipating debt and the mean amount were higher for those in three-year programs. For example, the proportions of white married women expecting such debts in three-year and four-year programs were 76.7 percent and 68.1 percent, respectively. Similarly, the $12,950 mean debt anticipated by white married women in three-year curricula compares with only $10,544 for those in four-year programs. For white single medical students, the reverse was true. As Table 8 shows, both the proportions and mean debts for these students were slightly larger for those in four-year programs.

In Table 9, data on anticipated indebtedness are given for students grouped by hometown size and parental income. Students from families with incomes of less than $5,000 or of more than $30,000 generally anticipated larger debts in three-year programs, while those from families with incomes from $5,000 to $30,000 generally expected larger debts in four-year curricula. This same pattern tends to be true with regard to the proportions of low income students anticipating these debts, but is less true for high income students. No ready explanation of these findings is apparent.

b. *Anticipated Indebtedness for Demographic Groups*

The rankings of data on anticipated debt which appear in this part of the study and in part "*c*" below include only those students in four-year curricula. Since the current trend in U.S. medical schools is away from three-year programs, it was felt that the exclusion of the indebtedness data characteristic of students in these shortened programs would make for more useful results.

Table 10 ranks demographic groups by the proportion of students within each group who expected debts upon graduation from medical school. Those groups which rank highest are composed of blacks and "other underrepresented" ethnic groups. These same groups also rank highest with regard to the mean amount of debt anticipated (see Table 11).

Table 10

Rank Ordering of the Proportions of Medical Students from Various Demographic Groups Anticipating Debt Upon Graduation, 1974-75*

Percentage	Rank	Race/Ethnicity	Sex	Marital Status
100.0	1	Other	Women	Married
96.2	2	Other Underrepresented	Men	Married
91.5	3	Black	Men	Married
84.5	4	Black	Men	Single
83.8	5	Black	Women	Single
77.8	6	Black	Women	Married
77.5	7	Other Underrepresented	Men	Single
75.0	8	Other Underrepresented	Women	Single
70.9	9	White	Women	Single
70.1	10	Other	Men	Married
69.4	11	Other	Women	Single
69.4	11	White	Men	Married
68.1	13	White	Women	Married
62.5	14	White	Men	Single
58.6	15	Other	Men	Single
50.0	16	Other Underrepresented	Women	Married

*Includes only those students in four-year curricula for reasons explained in text.

Table 11

Rank Ordering of Mean Anticipated Debt of Medical Students from Various Demographic Groups, 1974-75*

Mean Debt	Rank	Race/Ethnicity	Sex	Marital Status
$16,521	1	Black	Women	Married
14,320	2	Other Underrepresented	Men	Single
13,832	3	Other Underrepresented	Men	Married
13,742	4	Black	Women	Single
13,667	5	Other Underrepresented	Women	Married
12,867	6	White	Women	Single
12,814	7	Black	Men	Married
12,734	8	Black	Men	Single
12,340	9	White	Men	Single
12,327	10	Other	Women	Married
12,099	11	Other	Women	Single
12,000	12	Other Underrepresented	Women	Single
11,444	13	Other	Men	Single
10,544	14	White	Women	Married
10,351	15	Other	Men	Married
9,849	16	White	Men	Married

*Includes only those students in four-year curricula for reasons explained in text.

c. *Anticipated Indebtedness for Hometown/Income Groups*

A ranking of the proportion of students from various hometown/income groups who expected debts upon graduation is given in Table 12. These proportions range from a high of 89.6 percent for rural students with parental incomes of less than $5,000 to a low of 25.4 percent for medical students from medium-sized cities whose parental incomes are $50,000 or more. The rank ordering appears to be a function of parental income with no differences attributable to hometown size. As Table 13 shows, the average amount of debt anticipated by medical students at graduation ranged from $13,690 (students from large cities with parental earnings less than $5,000) to $8,035 (students from medium-sized cities with parental incomes of $50,000 or more). In general, there is the expected inverse relationship between parental income and anticipated indebtedness upon graduation from medical school.

Table 12

Rank Ordering of the Proportions of Medical Students

from Various Hometown/Income Groups Anticipating Debt Upon Graduation, 1974-75*

Percentage	Rank	Size of Hometown	Parental Income
89.6	1	Small	Less than $5,000
88.3	2	Medium	Less than $5,000
86.3	3	Small	$5,000 - 9,999
86.0	4	Medium	$5,000 - 9,999
85.7	5	Large	Less than $5,000
84.5	6	Large	$5,000 - 9,999
82.6	7	Large	$10,000 - 19,999
81.8	8	Small	$10,000 - 19,999
78.5	9	Medium	$10,000 - 19,999
69.1	10	Medium	$20,000 - 29,999
68.5	11	Large	$20,000 - 29,999
67.1	12	Small	$20,000 - 29,999
50.0	13	Medium	$30,000 - 49,999
49.9	14	Large	$30,000 - 49,999
48.0	15	Small	$30,000 - 49,999
35.2	16	Small	$50,000 or more
28.9	17	Large	$50,000 or more
25.4	18	Medium	$50,000 or more

*Includes only those students in four-year curricula for reasons explained in text.

Table 13

Rank Ordering of the Mean Anticipated Debt of Medical Students from Various Hometown/Income Groups, 1974-75*

Mean Debt	Rank	Size of Hometown	Parental Income
$13,690	1	Large	Less than $5,000
13,253	2	Small	Less than $5,000
13,052	3	Small	$20,000 - 29,999
12,833	4	Large	$5,000 - 9,999
12,509	5	Medium	Less than $5,000
12,402	6	Medium	$5,000 - 9,999
12,034	7	Small	$50,000 or more
11,800	8	Large	$10,000 - 19,999
11,757	9	Small	$10,000 - 19,999
11,415	10	Large	$20,000 - 29,999
11,152	11	Medium	$10,000 - 19,999
11,136	12	Small	$5,000 - 9,999
11,108	13	Large	$30,000 - 49,999
10,778	14	Medium	$20,000 - 29,999
10,558	15	Large	$50,000 or more
10,427	16	Medium	$30,000 - 49,999
10,057	17	Small	$30,000 - 49,999
8,035	18	Medium	$50,000 or more

*Includes only those students in four-year curricula for reasons explained in text.

Table 14

Career Preferences of Medical Students by Demographic and Background Characteristics, 1974-75*

Demographic and Background Characteristics	Max. Total N	Major Career Activity in Patient Care (%)	Preference for Primary Care (%)	Mean Number of Years in Residency	Geographic Area of Eventual Location: Large City or Suburb of Large City (%)	Geographic Area of Eventual Location: Medium or Small City (%)	Geographic Area of Eventual Location: Small Town or Rural Area (%)	Interest in Physician Shortage Area (%)	Environment§: Individual or Partnership Practice (%)	Environment§: Private Group Practice (%)	Environment§: Hospital or Academic Health Center (%)
ALL STUDENTS	7,261	94.1	60.5	3.68	27.0	54.3	18.7	47.9	32.0	36.8	24.0
Sex:		†	†	**	†	†	†				
Men	5,993	93.7	59.6	3.70	26.7	55.2	18.0	45.4	34.0	37.3	22.2
Women	1,237	95.5	65.1	3.55	29.0	48.9	22.1	59.6	22.1	34.1	32.9
Race/Ethnicity:		†		**	†	†	†				
White/Caucasian	6,447	94.2	60.8	3.67	25.3	55.2	19.5	45.6	32.2	37.9	23.4
Black/Afro-American	296	93.3	58.1	3.82	43.6	47.3	9.1	78.8	29.8	29.8	27.2
Other Underrepresented	106	99.0	68.8	3.51	28.1	51.7	20.2	80.4	39.1	26.1	16.3
Other Ethnic Groups	412	91.5	54.7	3.75	42.5	45.6	11.9	52.4	28.0	27.4	32.3
Marital Status:				**	†	†	†				
Single	4,498	94.4	59.5	3.70	30.4	51.5	18.1	50.1	31.8	34.9	26.2
Married, no children	2,113	93.4	61.0	3.66	23.4	57.0	19.5	42.5	31.8	40.3	22.0
Married, one child	412	94.3	67.8	3.60	16.4	62.8	20.8	50.7	34.9	38.2	16.7
Married, two children, plus	238	94.0	61.4	3.56	18.6	63.3	18.1	48.2	32.7	39.2	14.3
Size of Hometown		†	†	**	†	†	†				
Large City	3,188	93.0	54.1	3.75	47.8	40.8	11.4	44.6	26.9	34.4	30.9
Medium, Small Sized City	2,698	94.5	61.3	3.69	13.9	71.7	14.5	45.4	32.9	39.1	21.2
Small Town or Rural Area	1,359	95.4	73.2	3.48	7.9	49.8	42.3	60.3	41.3	37.7	14.4
Parental Income:			†	**	†	†	†				
Less than $5,000	404	93.0	65.4	3.53	26.4	48.9	24.7	65.1	32.8	31.9	26.8
$5,000 - 9,999	728	94.6	63.7	3.54	25.0	50.5	24.5	53.5	32.8	35.0	22.7
$10,000 - 19,999	2,352	94.7	64.7	3.60	24.4	55.8	19.8	51.0	33.3	35.7	23.2
$20,000 - 29,999	1,552	93.9	59.5	3.69	25.1	56.8	18.1	46.6	30.2	38.6	24.2
$30,000 - 49,999	1,086	93.7	55.7	3.79	31.5	53.3	15.2	41.0	29.0	40.6	24.8
$50,000 or more	939	93.6	51.2	3.90	33.8	53.6	12.6	37.4	33.3	36.9	24.5

* "Undecided" responses are excluded in deriving all percentages.

† $p(\chi^2 > \chi^2 df) < .05$

§ Approximately 7 percent of the respondents indicated preferences for other practice environments. Therefore the percentages do not add to 100.0. The χ^2 computed only for the environments given in the table indicates that $p(\chi^2 > \chi^2 df) < .05$.

** Using F test, $p < .05$

B. Student Characteristics and Career Plans

In exploring the relationships of selected demographic and background characteristics of medical students to career plan preferences, emphasis is on those career preferences involving (1) patient care activity rather than administration, research, or teaching; (2) primary care specialties -- i.e., family medicine/general practice, general internal medicine, obstetrics/gynecology, and general pediatrics; and (3) physician shortage area practice. Also analyzed in the section are plans for years in residency, geographic area of eventual location, and practice environment (e.g., individual, partnership, private group, or hospital-based practice).

The following discussion is divided into two parts. In the first, career preferences are described for each individual demographic and background characteristic (i.e., sex, race/ethnicity, marital status, size of hometown, and parental income). In Part 2, career plan variables are related to students grouped by combinations of these characteristics.

1. Career Preferences of Medical Students by Individual Demographic and Background Characteristics

Table 14 provides a general summary of the relationship of student demographic and background characteristics to career preferences. As indicated, most medical students (94.1 percent) foresaw patient care as their major career activity and a majority (60.5 percent) anticipated practicing in primary care specialties. Approximately half (47.9 percent) of the students responding showed interest in physician shortage area practice. These and other career preferences are examined below for selected demographic and background traits.

a. Sex

Previous studies comparing career preferences of men and women indicate that women more often choose careers in pediatrics and obstetrics/gynecology and are more apt to locate in hospital environments.* The data presented in Table 14 support these findings. A slightly larger proportion of women anticipated careers in which the major activity is patient care (96 percent for women versus 94 percent for men). Primary care specialties were preferred by 65 percent of all women as compared with 60 percent of the men. The data also show that slightly shorter periods of residency training were anticipated by women (3.55 years) than by men (3.70 years).

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*C. Lopate, Women in Medicine (Baltimore: Johns Hopkins Press, 1968), pp. 119-144; and

L. Powers, R. D. Parmelle, and H. Wiesenfelder, "Practice Patterns of Women and Men Physicians," Journal of Medical Education, 49 (1974), pp. 71-73.

Although the majority of both genders preferred eventual location in urban areas (cities with populations greater than 10,000), a greater proportion of women planned to locate in rural areas -- 22 percent as compared with 18 percent of the men. Interest in physician shortage area practice was also greater among women (60 percent) than men (45 percent).

Regarding their practice environment, women were more likely to choose a hospital-based environment for their medical practices than were men -- 33 percent versus 22 percent. On the other hand, individual and partnership practices were preferred by 34 percent of the men but by only 22 percent of women students (Table 14).

The distribution of primary care preferences by sex given in Table 15 indicates that women tended to choose obstetrics/gynecology and pediatrics while men preferred family medicine. The environment choices mentioned above support this distribution since family medicine, more often than not, is conducted in private practice away from hospitals. Obstetrics/gynecology and pediatrics, however, can be and sometimes are necessarily hospital-based. These observations lead to the speculation that women, with traditionally stronger familial obligations than men, choose primary care specialties which can be practiced in hospitals where constraints on their time are less demanding.

Table 15

Distribution of Medical Students

Preferring Primary Care by Specialty and Sex, 1974-75

Sex	Family Medicine/ General Practice		General Internal Medicine		Obstetrics/ Gynecology		General Pediatrics		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Men	1590	53.6	888	29.9	206	6.9	283	9.5	2967	100
Women	299	46.6	134	20.9	99	15.4	109	17.0	641	100
Total*	1896	52.4	1024	28.3	309	8.5	392	10.8	3621	100

$\chi^2 = 92.12$ (3*df*), $p < .05$

* Includes students not responding to question on gender.

Table 16

Distribution of Medical Students Preferring Primary Care by Specialty and Race/Ethnicity, 1974-75

Race/ Ethnicity	Family Medicine/ General Practice		General Internal Medicine		Obstetrics/ Gynecology		General Pediatrics		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
White/Caucasian	1703	52.7	925	28.6	251	7.8	352	10.9	3231	100
Black/Afro-American	62	42.2	32	21.8	38	25.9	15	10.2	147	100
Other Under-represented Ethnic Groups	38	59.4	14	21.9	6	9.4	6	9.4	64	100
Other Ethnic Groups	93	52.0	53	29.6	14	7.8	19	10.6	159	100
Total	1896	52.4	1024	28.3	309	8.5	392	10.8	3621	100

$\chi^2 = 61.21(9 df)$, $p < .05$

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b. *Race/Ethnicity*

Among the racial/ethnic groups designated in Table 14, "other underrepresented" ethnic groups (American Indian, Mexican American, and mainland Puerto Rican) indicated the highest interest in both patient care activity (99.0 percent) and primary care specialties (68.8 percent). "Other" ethnic groups (composed mainly of Oriental Americans) showed the least relative preference for such careers -- 91.5 percent choosing patient care activity and only 54.7 percent preferring primary care specialties.

The expected length of time planned for residency training, on the average, was longest for blacks (Table 14). This may be explained in part by the fact that blacks choosing primary care tended to prefer specialties other than family medicine. More graduate training is ordinarily required for these specialties. As shown in Table 16, 52.7 percent of whites who were interested in primary care preferred family medicine, but only 42.2 percent of black students having such interest chose this specialty.

All ethnic groups stated a preference for urban over rural areas for eventual practice location. Table 14 shows that this preference was strongest for blacks, 91 percent of whom preferred urban locations. Interest in physician shortage areas was highest for blacks (78.8 percent) and "other underrepresented" groups (80.4 percent). These compare with 52.4 percent for "other" ethnic groups and 45.6 percent for whites. With regard to the type of shortage area preferred, Table 17 indicates that blacks again were more interested in urban locations, while whites chose rural areas.

Table 17

Distribution of Medical Student Interest in Rural and Urban Physician Shortage Areas by Racial/Ethnic Groups, 1974-75*

Race/Ethnicity	Rural		Urban		Total	
	No.	Percent	No.	Percent	No.	Percent
White/Caucasian	1835	78.2	513	21.8	2348	100
Black/Afro-American	41	22.3	143	77.7	184	100
Other Underrepresented Ethnic Groups	33	50.8	32	49.2	65	100
Other Ethnic Groups	78	50.3	77	49.7	155	100
Total	1987	72.2	765	27.8	2752	100

$\chi^2 = 321.71(3df),\ p < .05$

* Excludes students interested in physician shortage area practice who indicated no preference for either rural or urban location.

For their practice environment, whites indicated a slight preference for private group practice while "other underrepresented" groups were attracted to individual or partnership practices (Table 14). Of all groups, "other" ethnic and blacks showed the strongest relative preference for hospital-based or academic health center practices.

From the above discussion, the following patterns are discernable among ethnic groups. Blacks entering primary care tend to select specialties other than family medicine and are slightly more apt to anticipate practice in an urban hospital environment. Of the four race/ethnicity groups in Table 14, "other underrepresented" ethnic groups showed the strongest preference for rural locations (20.2 percent) and individual or partnership practices (39.1 percent). Of those students interested in primary care, the proportion preferring family medicine was highest for "other underrepresented" students. "Other" ethnic groups showed a preference for urban hospital-based practices. No such unique career plan patterns were observable for whites.

c. *Marital Status*

As shown in Table 14, career plans were cross-tabulated for those students who were single, married with no children. married with one child, and married with two or more children. These categories make it possible to test the hypothesis that increased familial obligation results in career decisions requiring shorter periods of residency training.

The data offer some support for this hypothesis since there existed a slight though statistically significant inverse relationship between familial obligation and the number of years planned for graduate training. This ranged from 3.70 years for single students to 3.56 years for married students with two or more children. Since primary care specialties usually require less residency training, it is not surprising that preference for these specialties was slightly higher for married medical students.

Other differences observable among the four marital status groups with respect to career plans include a relatively low interest in physician shortage areas for married students with no children. Also, the preference for private practice was higher for married than single students.

d. *Size of Hometown*

Of the demographic traits considered in the study, size of hometown appeared to be the strongest determinant of medical student career preferences. Generally, students anticipated establishing practices in geographic areas much like those in which they grew up.

Students from small town and rural areas had a much stronger preference for primary care specialties and physician shortage area practice (mainly in rural areas). As shown in Table 14, 60.3 percent of rural students preferred underserved areas as compared with only 45 percent of students from urban locations.

Of the three professional environments included in this analysis, the individual or partnership option was the one most often chosen by students from small town and rural areas. Such practice arrangements are compatible with primary care practices in these areas. Students from urban backgrounds, preferring urban locales, were more apt to choose private group, hospital-based, or academic health center practices.

e. *Parental Income*

Although no relationship was evident between parental income and preferences for patient care activity, Table 14 shows that as parental earnings increased, interest in primary care decreased and the number of years planned for graduate training rose. Students from higher income backgrounds have more financial resources available to them and can afford to defer earnings longer.

Regarding practice location, proportionately more students chose urban areas as parental income increased. Interest in physician shortage areas was strongest for students from lower income backgrounds.

Although no consistent relationship was apparent between environment preferences and the six categories of parental income presented in Table 14, such a relationship is evident when parental income levels are collapsed into two groups. As shown in Table 18, students from lower income backgrounds tended slightly toward individual and partnership practices and away from private group arrangements.

2. Career Preferences for Combinations of Demographic and Background Characteristics

In the preceding section, career plans were described for students identified by a single demographic or background variable. However, since a student is never completely described by any one of these distinctions, the following analysis attempts to identify the "types" of individuals most attracted to certain career options. Although

Table 18

Distribution of Medical Student Environment Preferences

by Parental Income, 1974-75

Parental Income	Individual or Partnership		Private Group		Hospital-Based or Academic Health Center		Other		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Less than $20,000	1010	33.1	1071	35.1	717	23.5	250	8.2	3048	100
$20,000 or greater	935	30.6	1182	38.7	746	24.5	188	6.2	3051	100

$\chi^2 = 17.69$ (3*df*), $p < .05$

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complex interrelationships exist between the career factors discussed, for purposes of analysis, they are considered individually. The first three -- career activity, specialization plans, and length of residency training -- describe the specialty orientation of physicians. Geographic area of eventual location, interest in physician shortage area practice, and practice environment describe the demographic and professional situation in which this specialty will be practiced.

a. Major Career Activity: Patient Care

The data in Table 14 indicate that the vast majority of students planned careers involving patient care activity. Among the demographic groups shown in Table 19 this interest is uniformly high, ranging from 83.3 percent (for married women from "other under-represented" groups and married women from "other" ethnic groups) to 100 percent (for four groups). A Chi Square test of differences between proportions from each demographic group preferring patient care indicates that we should accept the null hypothesis (i.e., no differences). (The Chi Square value obtained from the data was less than χ^2=25.0, which for 15 degrees of freedom was not statistically significant at the 95 percent level of confidence). Although no overall significant effect is discernable for combinations of sex, race/ethnicity, and marital status, the effect of race/ethnicity and sex is evident for blacks. Higher proportions of black women than black men preferred patient care.

The proportions of students with various combinations of hometown size and parental income who preferred patient care are given in Table 20. The differences in proportions were tested and found to be significant [χ^2=30.65 (17*df*) $p<.05$]. As shown, these differences are attributable to the influence of hometown size, since larger proportions of students from rural areas, regardless of parental income, stated a preference for patient care activity.* These findings support those in the previous discussion regarding the effect of size of hometown on career choices. Again it must be remembered that an extremely high proportion of students are planning on patient care as the major activity for their practice. This would blunt any distinctions that are being made between the groups.

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*When the 18 hometown/income groups are rank ordered, "large city" groups do not appear in the top nine ranks. The probability of this occurring by random chance is .03 [The chance of obtaining a "large city" group at random within the first 9 ranks is a binomial event, $b(x;\ n,p,)$ where $x=0$, $n=9$, and $p=.33$].

Table 19

Major Career Activity Preferences of Medical Students from Various Demographic Groups, 1974-75

Demographic Groups	Patient Care *		Other		Total Decided	
	No.	%	No.	%	No.	%
ALL STUDENTS	6492	94.0	411	6.0	6903	100.0
WHITE/CAUCASIAN						
Men: Single	2792	94.1	174	5.9	2966	100.0
Married	2011	93.5	140	6.5	2151	100.0
Women: Single	708	95.8	31	4.2	739	100.0
Married	265	95.3	13	4.7	278	100.0
BLACK/AFRO-AMERICAN						
Men: Single	118	90.8	12	9.2	130	100.0
Married	64	92.8	5	7.2	69	100.0
Women: Single	72	97.3	2	2.7	74	100.0
Married	9	100.0	0	0.0	9	100.0
OTHER UNDERREPRESENTED						
Men: Single	47	100.0	0	0.0	47	100.0
Married	28	100.0	0	0.0	28	100.0
Women: Single	20	100.0	0	0.0	20	100.0
Married	5	83.3	1	16.7	6	100.0
OTHER ETHNIC GROUPS						
Men: Single	203	91.9	18	8.1	221	100.0
Married	91	91.0	9	9.0	100	100.0
Women: Single	49	92.5	4	7.5	53	100.0
Married	10	83.3	2	16.7	12	100.0

* $\chi^2 = 24.28 (15 df), p > .05$.

Table 20

Major Career Activity Preferences of Medical Students

With Various Combinations of Hometown Size and Parental Income, 1974-75

Hometown/Income Groups		Patient Care		Other		Total Decided	
		No.	%	No.	%	No.	%
	All Students	6335	94.1	397	5.9	6732	100.0
Size of Hometown	Parental Income						
Large city or suburb of large city (500,000 or more)	Less than $5,000	141	93.4	10	6.6	151	100.0
	$5,000 - 9,999	236	91.5	22	8.5	258	100.0
	$10,000 - 19,999	844	93.5	59	6.5	903	100.0
	$20,000 - 29,999	612	93.3	44	6.7	656	100.0
	$30,000 - 49,999	458	91.8	41	8.2	499	100.0
	$50,000 or more	420	93.8	28	6.2	448	100.0
Medium or small sized city (10,000-500,000)	Less than $5,000	112	89.6	13	10.4	125	100.0
	$5,000 - 9,999	237	96.0	10	4.0	247	100.0
	$10,000 - 19,999	829	95.5	39	4.5	868	100.0
	$20,000 - 29,999	543	93.9	35	6.1	578	100.0
	$30,000 - 49,999	372	96.1	15	3.9	387	100.0
	$50,000 or more	311	92.6	25	7.4	336	100.0
Small town or Rural Area (less than 10,000)	Less than $5,000	103	96.3	4	3.7	107	100.0
	$5,000 - 9,999	197	97.0	6	3.0	203	100.0
	$10,000 - 19,999	462	95.5	22	4.5	484	100.0
	$20,000 - 29,999	225	95.3	11	4.7	236	100.0
	$30,000 - 49,999	132	93.6	9	6.4	141	100.0
	$50,000 or more	101	96.2	4	3.8	105	100.0

$\chi^2 = 30.41$ ($17df$) $p < .05$

b. *Specialization: Primary Care*

Of the medical students sampled in the 1975 survey, 60.5 percent stated a preference for a primary care specialty. The variations in this interest among demographic and hometown/income groups are given in Tables 21 and 22, respectively. Chi Square tests for the distributions in both tables lead to the conclusion that specialization plans for these groups differed significantly from each other.

For example, the relative interest in primary care specialties among demographic groups, given in Table 21, ranged from 36.4 percent (for married women from "other" ethnic groups) to 100.0 percent (for married women from "other underrepresented" groups). As the data indicate, demographic groups composed of women usually showed a higher interest in such specialties. Also evident is the fact that within these groups, preferences for primary care were higher for "other underrepresented" and white women. Among women students, blacks showed the least interest in these specialties.

When interest in primary care specialties is analyzed for students with various combinations of hometown size and parental income (Table 22), an inverse relationship is found between such interest and size of hometown. These figures further indicate that students from lower income backgrounds were more likely to choose these primary care fields. For example, low income students (parental incomes less than $10,000) showed more interest in primary care than did high income students (parental incomes of $30,000 or more) regardless of the size of hometown. Interest in primary care specialties, as shown in Table 22, ranged from 47.1 percent for students from large cities with parental incomes of $50,000 or

Table 21

Specialization Plans of Medical Students

from Various Demographic Groups, 1974-75

Demographic Groups	Primary Care*		Other Specialties		Other		Total Decided	
	No.	%	No.	%	No.	%	No.	%
ALL STUDENTS	3608	60.5	2231	37.4	120	2.0	5959	100.0
WHITE/CAUCASIAN								
Men: Single	1449	58.2	991	39.8	49	2.0	2489	100.0
Married	1218	62.0	707	36.0	41	2.1	1966	100.0
Women: Single	393	66.4	185	31.3	14	2.4	592	100.0
Married	161	66.5	74	30.6	7	2.9	242	100.0
BLACK/AFRO-AMERICAN								
Men: Single	60	56.1	46	43.0	1	0.9	107	100.0
Married	45	66.2	23	33.8	0	0.0	68	100.0
Women: Single	36	52.9	29	42.6	3	4.4	68	100.0
Married	5	55.6	4	44.4	0	0.0	9	100.0
OTHER UNDERREPRESENTED								
Men: Single	29	65.9	15	34.1	0	0.0	44	100.0
Married	17	63.0	10	37.0	0	0.0	27	100.0
Women: Single	12	75.0	4	25.0	0	0.0	16	100.0
Married	5	100.0	0	0.0	0	0.0	5	100.0
OTHER ETHNIC GROUPS								
Men: Single	104	56.5	78	42.4	2	1.1	184	100.0
Married	45	50.0	43	47.8	2	2.2	90	100,0
Women: Single	25	61.0	16	39.0	0	0.0	41	100.0
Married	4	36.4	6	54.5	1	9.1	11	100.0

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*$\chi^2 = 36.28(15df)$, $p < .05$.

Table 22

Specialization Plans of Medical Students

With Various Combinations of Hometown Size and Parental Income, 1974-75

Hometown/Income Groups		Primary Care *		Other Specialties		Other		Total Decided	
		No.	%	No.	%	No.	%	No.	%
	All Students	3520	60.5	2179	37.4	121	2.1	5820	100.0
Size of Hometown	Parental Income								
Large city or suburb of large city (500,000 or more)	Less than $5,000	75	57.3	55	42.0	1	0.8	131	100.0
	$5,000 - 9,999	117	52.7	103	46.4	2	0.9	222	100.0
	$10,000 - 19,999	461	58.5	308	39.2	16	2.0	785	100.0
	$20,000 - 29,999	306	53.3	253	44.1	15	2.6	574	100.0
	$30,000 - 49,999	213	51.8	185	45.0	13	3.2	411	100.0
	$50,000 or more	173	47.1	187	51.0	7	1.9	367	100.0
Medium or small sized city (10,000-500,000)	Less than $5,000	70	65.4	34	31.8	3	2.8	107	100.0
	$5,000 - 9,999	131	62.4	75	35.7	4	1.9	210	100.0
	$10,000 - 19,999	502	66.1	243	32.0	14	1.8	759	100.0
	$20,000 - 29,999	301	62.2	175	36.2	8	1.7	484	100.0
	$30,000 - 49,999	187	55.7	142	42.3	7	2.1	336	100.0
	$50,000 or more	140	50.2	132	47.3	7	2.5	279	100.0
Small town or Rural Area (less than 10,000)	Less than $5,000	76	76.8	21	21.2	2	2.0	99	100.0
	$5,000 - 9,999	148	77.9	37	19.5	5	2.6	190	100.0
	$10,000 - 19,999	317	73.4	110	25.5	5	1.2	432	100.0
	$20,000 - 29,000	154	69.7	60	27.1	7	3.2	221	100.0
	$30,000 - 49,999	86	68.8	36	28.8	3	2.4	125	100.0
	$50,000 or more	63	71.6	23	26.1	2	2.3	88	100.0

* $\chi^2 = 168.76$ (17*df*), $p < .05$

more to 77.9 percent for students from rural areas with parental incomes of $5,000 - $9,999.

For those students sampled who indicated an interest in primary care practices, Tables 23 and 24 show the proportions interested in each of the four primary care specialties. Of the more than 3,500 students who indicated an interest in these specialties, over half (52.4 percent) preferred family medicine/general practice.* Second in popularity was general internal medicine, followed by general pediatrics and obstetrics/gynecology.†

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*N's for the two tables vary slightly due to some "no responses" to questions on student characteristics.

†Chi Squares for these tables generally lead to a rejection of the null hypothesis and indicate that choice of primary care specialty and student characteristics are significantly related. However, Chi Squares indicated no significant relationship between (1) family medicine and demographic groups and (2) obstetrics/gynecology and hometown/income groups.

Table 23

Primary Care Specialty Preferences of Medical Students From Various Demographic Groups, 1974-75

Demographic Groups	Family Medicine/ General Practice *		General Internal Medicine †		Obstetrics/ Gynecology §		General Pediatrics**		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
ALL STUDENTS	1889	52.4	1022	28.3	305	8.5	392	10.9	3608	100.0
WHITE/CAUCASIAN										
Men: Single	782	54.0	447	30.8	67	4.6	153	10.6	1449	100.0
Married	654	53.7	361	29.6	97	8.0	106	8.7	1218	100.0
Women: Single	193	49.1	85	21.6	56	14.2	59	15.0	393	100.0
Married	69	42.9	30	18.6	28	17.4	34	21.1	161	100.0
BLACK/AFRO-AMERICAN										
Men: Single	29	48.3	12	20.0	15	25.0	4	6.7	60	100.0
Married	20	44.4	12	26.7	13	28.9	0	0.0	45	100.0
Women: Single	11	30.6	7	19.4	8	22.2	10	27.8	36	100.0
Married	2	40.0	1	20.0	1	20.0	1	20.0	5	100.0
OTHER UNDERREPRESENTED										
Men: Single	21	72.4	6	20.7	2	6.9	0	0.0	29	100.0
Married	7	41.2	5	29.4	2	11.8	3	17.6	17	100.0
Women: Single	6	50.0	2	16.7	1	8.3	3	25.0	12	100.0
Married	3	60.0	1	20.0	1	20.0	0	0.0	5	100.0
OTHER ETHNIC GROUPS										
Men: Single	53	51.0	31	29.8	8	7.7	12	11.5	104	100.0
Married	24	53.3	14	31.1	2	4.4	5	11.1	45	100.0
Women: Single	13	52.0	7	28.0	3	12.0	2	8.0	25	100.0
Married	2	50.0	1	25.0	1	25.0	0	0.0	4	100.0

* $\chi^2 = 24.33$ (15df), $p > .05$
† $\chi^2 = 27.51$ (15df), $p < .05$
§ $\chi^2 = 120.73$ (15df), $p < .05$
** $\chi^2 = 56.30$ (15df), $p < .05$

Table 24

Primary Care Specialty Preferences of Medical Students With Various Combinations of Hometown Size and Parental Income, 1974-75

Hometown/Income Groups		Family Medicine/ General Practice*		General Internal Medicine †		Obstetrics/ Gynecology §		General Pediatrics**		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
	All Students	1848	52.5	991	28.2	299	8.5	382	10.9	3520	100.0
Size of Hometown	Parental Income										
Large city or suburb of large city (500,000 or more)	Less than $5,000	40	53.3	20	26.7	9	12.0	6	8.0	75	100.0
	$5,000 - 9,999	53	45.3	42	35.9	11	9.4	11	9.4	117	100.0
	$10,000 - 19,999	213	46.2	159	34.5	32	6.9	57	12.4	461	100.0
	$20,000 - 29,999	138	45.1	103	33.7	27	8.8	38	12.4	306	100.0
	$30,000 - 49,999	83	39.0	69	32.4	18	8.5	43	20.2	213	100.0
	$50,000 or more	63	36.4	69	39.9	16	9.2	25	14.5	173	100.0
Medium or small sized city (10,000-500,000)	Less than $5,000	42	60.0	12	17.1	8	11.4	8	11.4	70	100.0
	$5,000 - 9,999	80	61.1	29	22.1	11	8.4	11	8.4	131	100.0
	$10,000 - 19,999	278	55.4	125	24.9	41	8.2	58	11.6	502	100.0
	$20,000 - 29,999	146	48.5	81	26.9	33	11.0	41	13.6	301	100.0
	$30,000 - 49,999	85	45.5	67	35.8	20	10.7	15	8.0	187	100.0
	$50,000 or more	57	40.7	47	33.6	17	12.1	19	13.6	140	100.0
Small town or Rural Area (less than 10,000)	Less than $5,000	58	76.3	8	10.5	8	10.5	2	2.6	76	100.0
	$5,000 - 9,999	98	66.2	32	21.6	7	4.7	11	7.4	148	100.0
	$10,000 - 19,999	211	66.6	68	21.5	20	6.3	18	5.7	317	100.0
	$20,000 - 29,999	101	65.6	29	18.8	13	8.4	11	7.1	154	100.0
	$30,000 - 49,999	58	67.4	22	25.6	3	3.5	3	3.5	86	100.0
	$50,000 or more	44	69.8	9	14.3	5	7.9	5	7.9	63	100.0

* $\chi^2 = 150.10$ (17*df*), $p < .05$

† $\chi^2 = 82.55$ (17*df*), $p < .05$

§ $\chi^2 = 17.53$ (17*df*), $p > .05$

** $\chi^2 = 53.79$ (17*df*), $p > .05$

Family Medicine/General Practice

The data in Table 23 show that for a particular ethnic group, single students showed the strongest preference for family medicine. The proportion of blacks preferring this specialty was low, especially for black women, who showed the lowest proportional interest of any demographic group. For white students, the proportion preferring family medicine was also much higher among men than women.

When students are grouped by size of hometown and parental income (Table 24), the strongest predictor of interest in family medicine seems to be size of hometown. Significantly larger proportions of students from rural areas chose this specialty than did students from urban backgrounds (from populations of 10,000 or more). For rural students, this preference for family medicine was independent of parental income. However, for urban students size of hometown and parental earnings act in combination, with a larger proportion of students from low income backgrounds planning to enter family medicine.

General Internal Medicine

For a given ethnic group, interest in general internal medicine was consistently higher for men than women. Marital status seemed to be unrelated to these preferences except for black men and men from "other underrepresented" groups. Married men from these groups showed a slightly higher preference for general internal medicine.

For hometown/income groups, a trend counter to that for family medicine operates for general internal medicine. Students anticipating careers in the latter specialty tended to come from larger urban areas. Interest was also more prevalent among students from higher income backgrounds.

Obstetrics/Gynecology

The data in Table 23 show that demographic groups composed of women indicated a higher interest in obstetrics/gynecology. As the rank ordering in Table 25 illustrates, women occupy 7 of the top 9 positions. Noteworthy, however, is the fact that the top two ranks are occupied by black men. It might be speculated that women are seen as primary consumers of health care services in those areas where blacks will practice. This would support the fact that large proportions of both black men and women choose this specialty. The rank ordering also illustrates that for a given combination of ethnicity and gender, married students were somewhat more apt to lean toward obstetrics/gynecology as a primary care field (5 of the 7 top ranks are composed of married students).

Table 25

Rank Ordering of Proportions of Medical Students Interested in Primary Care Who Prefer Obstetrics/Gynecology (by Race/Ethnicity, Sex, and Marital Status), 1974-75

Percentage	Rank	Race/Ethnicity	Sex	Marital Status
28.9	1	Black	Men	Married
25.0	2	Black	Men	Single
25.0	2	Other	Women	Married
22.2	4	Black	Women	Single
20.0	5	Black	Women	Married
20.0	5	Other Underrepresented	Women	Married
17.4	7	White	Women	Married
14.2	8	White	Women	Single
12.0	9	Other	Women	Single
11.8	10	Other Underrepresented	Men	Married
8.3	11	Other Underrepresented	Women	Single
8.0	12	White	Men	Married
7.7	13	Other	Men	Single
6.9	14	Other Underrepresented	Men	Single
4.6	15	White	Men	Single
4.4	16	Other	Men	Married

For hometown/income groups, the proportion of students preferring obstetrics/gynecology was higher for medium-sized urban areas, with students from large cities and rural areas ranking second and third. For those preferring this specialty, no particular relationship to parental income is apparent.

- *General Pediatrics*

As shown in Table 23, demographic groups composed of women had a higher proportional interest in general pediatrics (with black women and white women ranking highest). The data illustrate no relationship between marital status and preference for this specialty.

Table 26

Number of Years Planned for Residency Training by Medical Students From Various Demographic Groups, 1974-75

Demographic Groups	One to Two Years *		Three to Four Years †		Five to Six Years §		Average Years in Residency	Total Decided	
	No.	%	No.	%	No.	%		No.	%
ALL STUDENTS	167	2.8	4646	78.3	1118	18.9	3.67	5931	100.0
WHITE/CAUCASIAN									
Men: Single	67	2.7	1886	76.5	512	20.8	3.71	2465	100.0
Married	45	2.2	1586	79.2	371	18.5	3.66	2002	100.0
Women: Single	13	2.3	477	84.0	78	13.7	3.58	568	100.0
Married	13	5.2	215	86.0	22	8.8	3.43	250	100.0
BLACK/AFRO-AMERICAN									
Men: Single	5	4.9	74	71.8	24	23.3	3.87	103	100.0
Married	1	1.5	50	74.6	16	23.9	3.85	67	100.0
Women: Single	1	1.8	47	82.5	9	15.8	3.72	57	100.0
Married	0	0.0	6	75.0	2	25.0	3.62	8	100.0
OTHER UNDERREPRESENTED									
Men: Single	4	10.3	29	74.4	6	15.4	3.54	39	100.0
Married	3	11.5	16	61.5	7	26.9	3.54	26	100.0
Women: Single	1	5.6	15	83.3	2	11.1	3.44	18	100.0
Married	0	0.0	6	100.0	0	0.0	3.33	6	100.0
OTHER ETHNIC GROUPS									
Men: Single	6	3.3	131	72.8	43	23.9	3.83	180	100.0
Married	8	8.5	66	70.2	20	21.3	3.61	94	100.0
Women: Single	0	0.0	31	83.8	6	16.2	3.76	37	100.0
Married	0	0.0	11	100.0	0	0.0	3.55	11	100.0

* $\chi^2 = 39.17$ (15*df*), $p < .05$
† $\chi^2 = 46.02$ (15*df*), $p < .05$
§ $\chi^2 = 44.88$ (15*df*), $p < .05$

Table 27

Number of Years Planned for Residency Training by Medical Students with Various Combinations of Hometown Size and Parental Income, 1974-75

Hometown/Income Groups		One to Two Years *		Three to Four Years †		Five to Six Years §		Average Years in Residency	Total Decided	
		No.	%	No.	%	No.	%		No.	%
	All Students	163	2.8	4552	78.4	1094	18.8	3.68	5809	100.0
Size of Hometown	Parental Income									
Large city or suburb of large city (500,000 or more)	Less than $5,000	7	5.0	109	77.9	24	17.1	3.94	140	100.0
	$5,000 - 9,999	11	5.2	160	75.8	40	19.0	3.69	211	100.0
	$10,000 - 19,999	20	2.6	618	78.9	145	18.5	3.69	783	100.0
	$20,000 - 29,999	14	2.5	413	74.7	126	22.8	3.76	553	100.0
	$30,000 - 49,999	10	2.4	313	75.6	91	22.0	3.77	414	100,0
	$50,000 or more	5	1.4	260	71.0	101	27.6	3.95	366	100.0
Medium or small sized city (10,000-500,000)	Less than $5,000	8	7.6	83	79.0	14	13.3	3.57	105	100.0
	$5,000 - 9,999	9	4.1	174	79.5	36	16.4	3.57	219	100.0
	$10,000 - 19,999	20	2.7	608	81.1	122	16.3	3.59	750	100.0
	$20,000 - 29,999	8	1.6	409	81.8	83	16.6	3.67	500	100.0
	$30,000 - 49,999	3	0.9	245	74.0	83	25.1	3.86	331	100.0
	$50,000 or more	5	1.7	213	72.2	77	26.1	3.91	295	100.0
Small town or Rural Area (less than 10,000)	Less than $5,000	7	7.1	81	81.8	11	11.1	3.37	99	100.0
	$5,000 - 9,999	13	7.1	152	83.5	17	9.3	3.34	182	100.0
	$10,000 - 19,999	12	2.8	362	85.2	51	12.0	3.46	425	100.0
	$20,000 - 29,999	6	2.7	182	81.3	36	16.1	3.58	224	100.0
	$30,000 - 49,999	4	3.2	102	81.0	20	15.9	3.60	126	100.0
	$50,000 or more	1	1.2	68	79.1	17	19.8	3.61	86	100.0

* $\chi^2 = 49.10$ (17*df*), *p* < .05
† $\chi^2 = 52.81$ (17*df*), *p* < .05
§ $\chi^2 = 82.89$ (17*df*), *p* < .05

As the data in Table 24 show, the interest in pediatrics was somewhat higher for students from urban areas. Such students also tended to come from higher income backgrounds.

In general, preferences among the four primary care specialties seemed to show the influences of gender more often than those of race/ethnicity or marital status. The influence of hometown size was generally significant in describing these preferences, with parental income becoming important only in distinguishing preferences for urban students.

c. *Years Planned for Residency Training*

As the data in Tables 26 and 27 indicate, the career plans of most medical students involved periods of residency training of from 3 to 4 years. A very small proportion (2.8 percent) anticipated less than three years of graduate training in medical education. This length of time may increase to 5 or 6 years for students choosing the more technical subspecialties.

Of the demographic groups in Table 26, longer than average time in residency training was anticipated by larger proportions of those groups which include men and for those including blacks than for other groups. The average number of years in residency was higher for men regardless of ethnicity and marital status.

The amount of time planned for residency training is given for hometown size and parental earnings in Table 27. The proportion of students planning 5 to 6 years of residency training increases fairly consistently both with amount of parental income and with size of hometown.

d. *Geographic Area of Eventual Location*

Tables 28 and 29 give information on the proportion of students preferring eventual location in areas of certain population sizes. As shown in Table 28, whites and "other underrepresented" ethnic groups tended to be oriented toward rural areas more than other groups. Gender and marital status seem not to have any bearing on these decisions. It is probable, however, that preferences for these students were determined largely by hometown size (the strength of this variable in influencing career plans was pointed out earlier). The data appearing in Table 29 show the influence of hometown as an indicator of eventual location preference. As was noted previously, parental income becomes a factor for urban students, such students from lower incomes being more inclined to locate in rural areas than those from higher income families.

Table 28

Geographic Location Preferences of Medical Students from Various Demographic Groups, 1974-75

Demographic Groups	Large city or suburb of large city*		Medium or small sized city†		Small town or rural area §		Total Decided	
	No.	%	No.	%	No.	%	No.	%
ALL STUDENTS	1698	27.1	3396	54.2	1172	18.7	6266	100.0
WHITE/CAUCASIAN								
Men: Single	771	29.0	1414	53.2	473	17.8	2658	100.0
Married	399	19.7	1218	60.1	408	20.1	2025	100.0
Women: Single	171	27.2	300	47.8	157	25.0	628	100.0
Married	68	26.7	136	53.3	51	20.0	255	100.0
BLACK/AFRO-AMERICAN								
Men: Single	57	46.7	55	45.1	10	8.2	122	100.0
Married	27	41.5	33	50.8	5	7.7	65	100.0
Women: Single	29	43.9	29	43.9	8	12.1	66	100.0
Married	2	20.0	7	70.0	1	10.0	10	100.0
OTHER UNDERREPRESENTED								
Men: Single	11	26.2	25	59.5	6	14.3	42	100.0
Married	5	18.5	15	55.6	7	25.9	27	100.0
Women: Single	5	38.5	4	30.8	4	30.8	13	100.0
Married	4	66.7	1	16.7	1	16.7	6	100.0
OTHER ETHNIC GROUPS								
Men: Single	91	46.2	88	44.7	18	9.1	197	100.0
Married	37	39.4	41	43.6	16	17.0	94	100.0
Women: Single	16	34.8	25	54.3	5	10.9	46	100.0
Married	5	41.7	5	41.7	2	16.7	12	100.0

* $\chi^2 = 154.16$ (15*df*), $p < .05$

† $\chi^2 = 67.66$ (15*df*), $p < .05$

§ $\chi^2 = 53.94$ (15*df*), $p < .05$

Table 29

Geographic Location Preferences of Medical Students with Various Combinations of Hometown Size and Parental Income, 1974-75

Hometown/Income Groups		Large city or suburb of large city*		Medium or small sized city †		Small town or rural area §		Total Decided	
		No.	%	No.	%	No.	%	No.	%
	All Students	1654	27.0	3331	54.4	1138	18.6	6123	100.0
Size of Hometown	Parental Income								
Large city or suburb of large city (500,000 or more)	Less than $5,000	71	49.3	51	35.4	22	15.3	144	100.0
	$5,000 - 9,999	113	50.2	83	36.9	29	12.9	225	100.0
	$10,000 - 19,999	374	46.5	338	42.0	92	11.4	804	100.0
	$20,000 - 29,999	242	43.4	241	43.2	75	13.4	558	100.0
	$30,000 - 49,999	217	48.5	184	41.2	46	10.3	447	100.0
	$50,000 or more	219	54.1	154	38.0	32	7.9	405	100.0
Medium or small-sized city (10,000-500,000)	Less than $5,000	15	13.3	80	70.8	18	15.9	113	100.0
	$5,000 - 9,999	34	14.8	156	68.1	39	17.0	229	100.0
	$10,000 - 19,999	97	12.1	568	71.1	134	16.8	799	100.0
	$20,000 - 29,999	71	13.2	392	73.1	73	13.6	536	100.0
	$30,000 - 49,999	63	17.5	252	69.8	46	12.7	361	100.0
	$50,000 or more	42	14.0	233	77.7	25	8.3	300	100.0
Small town or Rural Area (less than 10,000)	Less than $5,000	7	6.9	45	44.6	49	48.5	101	100.0
	$5,000 - 9,999	15	7.8	87	45.1	91	47.2	193	100.0
	$10,000 - 19,999	31	6.8	241	53.2	181	40.0	453	100.0
	$20,000 - 29,999	19	8.3	119	52.0	91	39.7	229	100.0
	$30,000 - 49,999	16	12.0	66	49.6	51	38.3	133	100.0
	$50,000 or more	8	8.6	41	44.1	44	47.3	93	100.0

* $\chi^2 = 1018.04$ (17*df*), $p < .05$

† $\chi^2 = 513.78$ (17*df*), $p < .05$

§ $\chi^2 = 587.31$ (17*df*), $p < .05$

e. *Interest in Physician Shortage Area Practice*

Particular interest lies in describing those students who indicated an interest in serving in physician shortage areas. Of the students sampled in the 1975 survey, approximately 48 percent stated an interest in such service. Of these, almost 60 percent preferred rural shortage areas.

Among demographic groups (Table 30), the proportions interested in physician shortage area practice ranged from 95.2 percent (for single women from "other underrepresented" ethnic groups) to 41.9 percent (for white married men). Within a given ethnic group, larger proportions of women than men consistently indicated an interest in shortage area practice. Of the four racial/ethnic categories, blacks and "other underrepresented" groups showed the highest interest.

Table 30

Interest in Physician Shortage Area Practice Indicated by

Medical Students from Various Demographic Groups, 1974-75

Demographic Groups			Interested		Not Interested		Total	
			No.	Percent	No.	Percent	No.	Percent
ALL STUDENTS			3326	47.8	3629	52.2	6955	100.0
WHITE/CAUCASIAN								
	Men:	Single	1341	44.7	1657	55.3	2998	100.0
		Married	907	41.9	1259	58.1	2166	100.0
	Women:	Single	437	59.5	298	40.5	735	100.0
		Married	131	47.0	148	53.0	279	100.0
BLACK/AFRO-AMERICAN								
	Men:	Single	98	75.4	32	24.6	130	100.0
		Married	53	77.9	15	22.1	68	100.0
	Women:	Single	67	84.8	12	15.2	79	100.0
		Married	8	80.0	2	20.0	10	100.0
OTHER UNDERREPRESENTED								
	Men:	Single	36	78.3	10	21.7	46	100.0
		Married	20	71.4	8	28.6	28	100.0
	Women:	Single	20	95.2	1	4.8	21	100.0
		Married	5	83.3	1	16.7	6	100.0
OTHER ETHNIC GROUPS								
	Men:	Single	112	50.7	109	49.3	221	100.0
		Married	45	44.6	56	55.4	101	100.0
	Women:	Single	36	66.7	18	33.3	54	100.0
		Married	10	76.9	3	23.1	13	100.0

$\chi^2 = 252.45(15df)$, $p < .05$.

Table 31

Interest in Rural and Urban Physician Shortage Area Practice Indicated by Medical Students from Various Demographic Groups, 1974-75

Demographic Groups		Rural *		Urban†		No Preference§		Total	
		No.	%	No.	%	No.	%	No.	%
ALL STUDENTS		1976	59.4	762	22.9	588	17.8	3326	100.0
WHITE/CAUCASIAN									
Men:	Single	862	64.3	244	18.2	235	17.5	1341	100.0
	Married	648	71.4	136	15.0	123	13.6	907	100.0
Women:	Single	235	53.8	102	23.3	100	22.9	437	100.0
	Married	83	63.4	28	21.4	20	15.3	131	100.0
BLACK/AFRO-AMERICAN									
Men:	Single	15	15.3	67	68.4	16	16.3	98	100.0
	Married	12	22.6	31	58.5	10	18.9	53	100.0
Women:	Single	12	17.9	39	58.2	16	23.9	67	100.0
	Married	1	12.5	6	75.0	1	12.5	8	100.0
OTHER UNDERREPRESENTED									
Men:	Single	14	38.9	18	50.0	4	11.1	36	100.0
	Married	12	60.0	8	40.0	0	0.0	20	100.0
Women:	Single	7	35.0	3	15.0	10	50.0	20	100.0
	Married	0	0.0	3	60.0	2	40.0	5	100.0
OTHER ETHNIC GROUPS									
Men:	Single	33	29.5	46	41.1	33	29.5	112	100.0
	Married	24	53.3	16	35.6	5	11.1	45	100.0
Women:	Single	11	30.6	15	41.7	10	27.8	36	100.0
	Married	7	70.0	0	0.0	3	30.0	10	100.0

* χ^2 = 311.96 (17*df*), $p < .05$
† χ^2 = 319.48 (17*df*), $p < .05$
§ χ^2 = 58.36 (17*df*), $p < .05$

Urban/rural preferences for these demographic groups are given in Table 31. Regardless of sex or marital status, black students interested in physician shortage area service generally preferred urban locations, whereas with whites interested in such practices, the preferences were more often for rural locations.

The effect of size of hometown and parental income (Table 32) indicates that interest in shortage area practice was slightly higher among students from small towns and rural areas. In addition, students from lower income families more often planned to serve in these areas. Low parental income was a particularly strong determinant of interest for students from medium-sized and small cities. Although interest in rural areas was stronger for all hometown/income groups (Table 33), this preference for rural locations was particularly high for students who came from such areas.

Table 32

Interest in Physician Shortage Area Practice Indicated by Medical Students with Various Combinations of Hometown Size and Parental Income, 1974-75

Hometown/Income Groups		Interested		Not Interested		Total	
		No.	Percent	No.	Percent	No.	Percent
	All Students	3245	47.8	3542	52.2	6787	100.0
Size of Hometown	Parental Income						
Large city or suburb of large city (500,000 or more)	Less than $5,000	89	55.3	72	44.7	161	100.0
	$5,000 - 9,999	130	50.0	130	50.0	260	100.0
	$10,000 - 19,999	436	47.5	482	52.5	918	100.0
	$20,000 - 29,999	302	44.7	373	55.3	675	100.0
	$30,000 - 49,999	206	40.7	300	59.3	506	100.0
	$50,000 or more	158	34.6	298	65.4	456	100.0
Medium or small sized city (10,000-500,000)	Less than $5,000	78	63.9	44	36.1	122	100.0
	$5,000 - 9,999	126	51.9	117	48.1	243	100.0
	$10,000 - 19,999	429	49.5	438	50.5	867	100.0
	$20,000 - 29,999	253	43.5	329	56.5	582	100.0
	$30,000 - 49,999	139	36.3	244	63.7	383	100.0
	$50,000 or more	126	38.0	206	62.0	332	100.0
Small town or Rural Area (less than 10,000)	Less than $5,000	88	80.0	22	20.0	110	100.0
	$5,000 - 9,999	123	60.3	81	39.7	204	100.0
	$10,000 - 19,999	295	60.5	193	39.5	488	100.0
	$20,000 - 29,999	143	59.3	98	40.7	241	100.0
	$30,000 - 49,999	76	54.7	63	45.3	139	100.0
	$50,000 or more	48	48.0	52	52.0	100	100.0

$\chi^2 = 206.65$ (17df), $p < .05$

Table 33

Interest in Rural and Urban Physician Shortage Area Practice Indicated by Medical Students with Various Combinations of Hometown Size and Parental Income, 1974-75

Hometown/Income Groups		Rural *		Urban †		No Preference §		Total	
		No.	%	No.	%	No.	%	No.	%
	All Students	1928	59.4	743	22.9	574	17.7	3245	100.0
Size of Hometown	Parental Income								
Large city or suburb of large city (500,000 or more)	Less than $5,000	39	43.8	32	36.0	18	20.2	89	100.0
	$5,000 -9,999	63	48.5	41	31.5	26	20.0	130	100.0
	$10,000 - 19,999	204	46.8	139	31.9	93	21.3	436	100.0
	$20,000 - 29,999	161	53.3	80	26.5	61	20.2	302	100.0
	$30,000 - 49,999	112	54.4	55	26.7	39	18.9	206	100.0
	$50,000 or more	76	48.1	52	32.9	30	19.0	158	100.0
Medium or small sized city (10,000-500,000)	Less than $5,000	37	47.4	20	25.6	21	26.9	78	100.0
	$5,000 - 9,999	70	55.6	40	31.7	16	12.7	126	100.0
	$10,000 - 19,999	253	59.0	95	22.1	81	18.9	429	100.0
	$20,000 - 29,000	147	58.1	58	22.9	48	19.0	253	100.0
	$30,000 - 49,000	92	66.2	23	16.5	24	17.3	139	100.0
	$50,000 cr more	87	69.0	20	15.9	19	15.1	126	100.0
Small town or Rural Area (less than 10,000)	Less than $5,000	58	65.9	15	17.0	15	17.0	88	100.0
	$5,000 - 9,999	99	80.5	14	11.4	10	8.1	123	100.0
	$10,000 - 19,999	228	77.3	31	10.5	36	12.2	295	100.0
	$20,000 - 29,999	112	78.3	14	9.8	17	11.9	143	100.0
	$30,000 - 49,999	51	67.1	13	17.1	12	15.8	76	100.0
	$50,000 or more	39	81.2	1	2.1	8	16.7	48	100.0

* $\chi^2 = 168.45$ (17*df*), $p < .05$
† $\chi^2 = 123.38$ (17*df*), $p < .05$
§ $\chi^2 = 31.95$ (17*df*), $p < .05$

f. *Practice Environment*

The practice environment anticipated by medical students appears to be related to their geographic location preferences. For example, hospital-based practices are least likely to occur in rural areas. Tables 34 and 35 provide data on the proportions of students preferring (1) individual or partnership practices, (2) private group practice, and (3) hospital-based or academic health center practices.

As shown in Table 34, the proportions planning individual and partnership practices tended to be larger for men regardless of ethnic group or marital status. On the other hand, the preferences for hospital-based or academic health center practices were higher for women.

When these students are grouped by hometown size and parental income (Table 35), a higher proportion from rural areas planned on individual and partnership practices, while those from more urban areas tended to anticipate practices connected with hospitals. These trends appear to be relatively independent of parental income.

C. Indebtedness and Career Plans

One of the primary objectives of this study was to assess the degree to which financial indebtedness is associated with the career preferences of medical students. In Section A, the relationship of such indebtedness to background and demographic characteristics of medical students was explored. This section analyzes the relationship between indebtedness and career decisions. In particular, the proportion of students in debt and the mean amount of this debt are examined for final-year students since their estimates of anticipated debt at graduation are apt to be more accurate and their career plans less tenuous.

As shown in previous sections, student characteristics such as gender, marital status, race/ethnicity, hometown size, and parental income may be strong predictors of both debts at graduation (Table 1-B) and of certain career orientations (Table 14). For example, interest in primary care specialties and the proportion of students anticipating debts were higher among students from rural areas and low income families. In the following analyses of the association between indebtedness and career plans, it should be acknowledged that for most medical students these socioeconomic variables may be truer predictors of career choices and that indebtedness may well be a reflection of this background rather than a separate factor influencing career planning.

1. Major Career Activity: Patient Care

Over 90 percent of the sample planned on devoting the majority of their medical careers to patient care activities, the remainder preferring to

Table 34

Environment Preferences of Medical Students from Various Demographic Groups, 1974-75

Demographic Groups	Individual or Partnership*		Private Group †		Hospital-Based or Academic Health Center §		Other **		Total Decided	
	No.	%	No.	%	No.	%	No.	%	No.	%
ALL STUDENTS	2000	32.0	2297	36.8	1499	24.0	450	7.2	6246	100.0
WHITE/CAUCASIAN										
Men: Single	911	34.4	966	36.4	640	24.1	135	5.1	2652	100.0
Married	680	33.8	815	40.5	375	18.6	142	7.1	2012	100.0
Women: Single	142	22.6	223	35.5	200	31.8	63	10.0	628	100.0
Married	56	21.9	99	38.7	86	33.6	15	5.9	256	100.0
BLACK/AFRO-AMERICAN										
Men: Single	43	35.8	32	26.7	31	25.8	14	11.7	120	100.0
Married	23	33.8	27	39.7	11	16.2	7	10.3	68	100.0
Women: Single	12	18.2	15	22.7	26	39.4	13	19.7	66	100.0
Married	1	10.0	4	40.0	4	40.0	1	10.0	10	100.0
OTHER UNDERREPRESENTED										
Men: Single	19	44.2	13	30.2	7	16.3	4	9.3	43	100.0
Married	10	40.0	9	36.0	2	8.0	4	16.0	25	100.0
Women: Single	5	29.4	1	5.9	4	23.5	7	41.2	17	100.0
Married	2	33.3	0	0.0	2	33.3	2	33.3	6	100.0
OTHER ETHNIC GROUPS										
Men: Single	53	28.5	48	25.8	63	33.9	22	11.8	186	100.0
Married	31	31.6	32	32.7	27	27.6	8	8.2	98	100.0
Women: Single	10	20.8	10	20.8	17	35.4	11	22.9	48	100.0
Married	2	18.2	3	27.3	4	36.4	2	18.2	11	100.0

* $\chi^2 = 64.63$ (15*df*), $p < .05$
† $\chi^2 = 51.47$ (15*df*), $p < .05$
§ $\chi^2 = 98.51$ (15*df*), $p < .05$
** $\chi^2 = 110.50$ (15*df*), $p < .05$

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Table 35

Environment Preferences of Medical Students with Various Combinations of Hometown Size and Parental Income, 1974-75

Hometown/Income Groups		Individual or Partnership*		Private Group †		Hospital-Based or Academic Health Centers§		Other**		Total Decided	
		No.	%	No.	%	No.	%	No.	%	No.	%
All Students		1945	32.0	2248	36.9	1462	24.0	432	7.1	6087	100.0
Size of Hometown	Parental Income										
Large city or suburb of large city (500,000 or more)	Less than $5,000	43	30.5	40	28.4	52	36.9	6	4.3	141	100.0
	$5,000 - 9,999	61	26.6	71	31.0	71	31.0	26	11.4	229	100.0
	$10,000 - 19,999	221	27.4	283	35.1	239	29.7	63	7.8	806	100.0
	$20,000 - 29,999	149	25.9	203	35.3	178	31.0	45	7.8	575	100.0
	$30,000 - 49,999	112	25.9	155	35.8	135	31.2	31	7.2	433	100.0
	$50,000 or more	114	28.1	140	34.6	126	31.1	25	6.2	405	100.0
Medium or small sized city (10,000-500,000)	Less than $5,000	31	28.2	40	36.4	28	25.5	11	10.0	110	100.0
	$5,000 - 9,999	73	33.5	76	34.9	52	23.9	17	7.8	218	100.0
	$10,000 - 19,999	257	32.4	300	37.9	169	21.3	66	8.3	792	100.0
	$20,000 - 29,999	169	31.8	218	41.1	109	20.5	35	6.6	531	100.0
	$30,000 - 49,999	106	30.7	155	44.9	69	20.0	15	4.3	345	100.0
	$50,000 or more	113	37.5	114	37.9	61	20.3	13	4.3	301	100.0
Small town or Rural Area (less than 10,000)	Less than $5,000	42	42.9	33	33.7	15	15.3	8	8.2	98	100.0
	$5,000 - 9,999	76	39.4	77	39.9	22	11.4	18	9.3	193	100.0
	$10,000 - 19,999	206	45.4	150	33.0	69	15.2	29	6.4	454	100.0
	$20,000 - 29,999	85	37.3	93	40.8	36	15.8	14	6.1	228	100.0
	$30,000 - 49,999	46	34.8	60	45.5	21	15.9	5	3.8	132	100.0
	$50,000 or more	41	42.7	40	41.7	10	10.4	5	5.2	96	100.0

* $\chi^2 = 92.52$ (17*df*), $p < .05$
† $\chi^2 = 35.71$ (17*df*), $p < .05$
§ $\chi^2 = 146.80$ (17*df*), $p < .05$
** $\chi^2 = 25.73$ (17*df*), $p > .05$

be involved in either research, administration, teaching, or other activities. However, activities related to patient care can range from primary care -- where there is direct interaction with patients -- to those activities providing technical support for other physicians and surgeons. In addition, those physicians involved in patient care may also be involved in other activities such as administration or research. Both these considerations would tend to reduce the ability to distinguish between students with different activity plans, and thus would magnify the chances that differences in levels of indebtedness between such students would be insignificant.

Table 36

Number and Proportion of Medical Students (in Final Year and All Years)

Anticipating Debt Upon Graduation and Mean Amount of This Debt by

Major Career Activity Plans, 1974-75

Major Career Activity Plans	Final Year			All Years		
	Students Anticipating Debt *		Mean Debt	Students Anticipating Debt †		Mean Debt
	No.	%		No.	%	
TOTAL	1114	69.1	$10,119	4633	67.2	$11,620
Patient Care	1029	69.5	10,009	4370	67.4	11,608
Other	85	63.9	11,455	263	64.5	11,818

* $\chi^2 = 1.80$ (1*df*), $p > .05$
† $\chi^2 = 1.52$ (1*df*), $p > .05$

Table 36 shows that students oriented towards patient care activities were somewhat more likely to be in debt than those not planning on such activities. For final-year students planning on patient care activities, 69.5 percent were in debt; whereas 63.9 percent of those students not planning on such activities were in debt. For "all students," this pattern is repeated. Neither of these differences were proven to be statistically significant.

For the total sample, the difference in mean anticipated debts between those choosing patient care activities and those who do not was also small. However, for final-year students, this difference shows that those choosing patient care anticipated incurring \$1,446 less debt than those choosing other activities.

These data would support the contention offered above and may indicate either (1) a true lack of relationship between indebtedness and patient care orientation or (2) the need for better measures of planned activities. These measures might stress patient care orientation by assessing the degree of patient contact preferred and the type of contact preferred. Another approach to measuring the type of patient contact desired is through the analysis of specialization plans.

Table 37

Number and Proportion of Medical Students (in Final Year and All Years)
Anticipating Debt Upon Graduation and Mean Amount of This Debt
by Specialization Plans, 1974-75

Specialization Plans	Final Year			All Years		
	Students Anticipating Debt *		Mean Debt	Students Anticipating Debt †		Mean Debt
	No.	%		No.	%	
TOTAL	1085	69.1	\$10,099	4047	68.1	\$11,548
Primary Care	582	72.5	10,056	2545	70.8	11,700
Other Specialty	476	65.3	10,173	1425	63.9	11,312
Other	27	69.2	9,736	77	64.7	10,898

* $\chi^2 = 9.23\ (2df),\ p < .05$
† $\chi^2 = 30.65\ (2df),\ p < .05$

2. Career Specialization: Primary Care

Table 37 gives the proportion in debt and the mean amount of debt for final-year students and students in all years who indicated interest in a primary care specialty. Almost seventy-one percent of all students planning on primary care anticipated debts as compared with 63.9 percent

Table 38

Number and Proportion of Medical Students (in Final Year and All Years) Anticipating Debt Upon Graduation and Mean Amount of This Debt by Primary Care Specialty Plans, 1974-75

Primary Care Specialty Plans	Final Year			All Years		
	Students Anticipating Debt *		Mean Debt	Students Anticipating Debt †		Mean Debt
	No.	%		No.	%	
TOTAL	582	72.5	$10,056	2545	70.8	$11,700
Family Medicine/ General Practice	230	74.9	9,625	1347	71.4	11,819
General Internal Medicine	189	69.0	10,404	710	70.0	11,790
Obstetrics/Gynecology	86	76.1	10,246	225	73.5	11,281
General Pediatrics	77	70.6	10,281	263	68.0	11,203

* $\chi^2 = 3.53$ (3*df*), $p > .05$
† $\chi^2 = 3.22$ (3*df*), $p > .05$

of those planning other specialties. For final-year students the respective proportions were 72.5 percent and 65.3 percent. These differences -- both of which are statistically significant -- indicate that in order to finance their educations, proportionally more medical students interested in primary care must borrow than students planning other medical careers. Again, this is probably explained by the relatively lower socioeconomic backgrounds of the former group.

Differences in the mean amount of this debt, however, did not differ significantly. As shown in Table 37, for students in all years, those preferring primary care anticipated slightly greater indebtedness ($11,700) than did students preferring other specialties ($11,312).* Among final-year students, the mean debt for those preferring primary care was less than for those planning other specialties, although the difference is not significant.

Among the four primary care specialties given in Table 38, differences in the proportion of students anticipating debt did not prove statistically significant. The accompanying data on mean debt show

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*A *t*-test indicates that this difference is insignificant, $t=1.44$ (3969*df*).

that for students in all years, anticipated mean debt was slightly greater for those aiming for family medicine and internal medicine than for those with other plans. However, the data for final-year students indicate that students preferring general practice anticipated slightly lower debts than did those planning on other specialties.

3. Years Planned for Residency Training

A medical student's background may exert a strong influence in decisions regarding the type of medical practice he or she will establish. For many of these students, the amount of indebtedness and length of time to be spent in residency training may not have significant influence. On the other hand, for some medical students, career decisions may involve attempts to maximize lifetime earnings. Because income differentials between practicing physicians and graduate medical students (residents) are large, maximizing lifetime earnings may be accomplished in some instances by shortening the residency period. This may not only result in greater lifetime earnings, but more importantly will allow the M.D. to reach his average earning potential earlier in his career. Thus, it might be expected that those with large debts will be more likely to shorten their residency periods.

The evidence in Table 39 indicates that proportionally more students planning on three to four year residencies anticipated debt than did those planning on five to six year residencies. For final-

Table 39

Number and Proportion of Medical Students (in Final Year and All Years) Anticipating Debt Upon Graduation and Mean Amount of This Debt by Years Planned for Residency Training, 1974-75

Years Planned for Residency Training	Final Year			All Years		
	Students Anticipating Debt *		Mean Debt	Students Anticipating Debt †		Mean Debt
	No.	%		No.	%	
TOTAL	1099	69.5	$10,085	4057	66.9	$11,455
1 - 2 years	23	60.5	11,565	115	69.7	12,839
3 - 4 years	831	71.5	10,054	3255	70.2	11,500
5 - 6 years	245	64.3	10,052	687	61.7	11,013

* $\chi^2 = 8.38$ $(2df)$, $p < .05$
† $\chi^2 = 30.62$ $(2df)$, $p < .05$

Table 40

Number and Proportion of Medical Students (in Final Year and All Years) Anticipating Debt Upon Graduation and Mean Amount of This Debt by Geographic Area of Eventual Location, 1974-75

Geographic Area of Eventual Location	Final Year			All Years		
	Students Anticipating Debt *		Mean Debt	Students Anticipating Debt †		Mean Debt
	No.	%		No.	%	
TOTAL	1056	69.2	$10,084	4206	67.2	$11,461
Large City or suburb of large city	288	66.4	10,359	1093	64.8	11,977
Medium or small sized city	623	69.0	9,864	2287	67.3	10,945
Small town or rural area	145	76.7	10,483	826	70.7	12,206

* $\chi^2 = 6.68$ (2*df*), $p < .05$
† $\chi^2 = 10.96$ (2*df*), $p < .05$

year students, 71.5 percent of those planning on three to four year residencies expected debts. This compares with 64.3 percent of those planning on longer periods. However, it must be noted that proportionally fewer students planning one to two year residencies anticipated debt (60.5 percent). When we examine all students planning one to two year residencies, a much higher incidence of debt is observed. [When only first and intermediate year students with such plans are considered, the proportion anticipating debt was highest (72.4 percent).]

Mean debts indicate that shorter residency periods are associated with larger anticipated debts. The data show that for final-year students planning one to two year residencies, mean debt was $1,513 greater than for those planning five to six year residencies. This difference for students in all years was $1,826.

Thus, it would seem that indebtedness may be positively related to shorter residencies. However, it must be noted that the significant differences in the incidence of anticipated debt are blunted by the moderately high level of indebtedness observed for students planning all lengths of residency.

4. Geographic Area of Eventual Location

The relationship between indebtedness and size of planned practice location is given in Table 40. An inverse relationship between size of practice location and the proportion of students in debt was present both for final-year students and for all students. For final-year students, the proportion of students choosing rural or small town practice locations who anticipated debt was 76.7 percent, while for those preferring large urban locations, this proportion was 66.4 percent. For students in all years, the respective proportions of students anticipating debt were 70.7 percent for students preferring rural areas and 64.8 percent for those preferring large cities. However, no such pattern is observed for mean debt. Accordingly, the overall results would indicate that indebtedness may not be a factor in decisions relating to size of location of eventual practice. Based on the results from Section B, we would expect that size of hometown is more important in such decisions than is the degree of indebtedness.

5. Interest in Physician Shortage Area Practice

Table 41 compares indebtedness for students interested in physician shortage area practice with that for students not interested in such careers. The proportion of students anticipating debts at graduation was higher for students interested in shortage area practices. Of final-year students, 73.1 percent of those interested were in debt as compared with 66.0 percent of those not interested. For students in all years, 69.2 percent of those interested and 63.4 percent of those not interested were anticipating debts. Differences in both cases were statistically significant.

Mean debt figures indicate that those who were interested in physician shortage area practice anticipated incurring slightly larger debts than those not interested in such practice.* In other words, the extent to which students interested in physician shortage area practice depend on repayable funds is somewhat greater than for those not interested.

In Table 42, preferences for urban and rural physician shortage areas are given. Although for both final-year students and students in all years, the proportions anticipating debt and preferring urban shortage areas were slightly larger than for those preferring rural shortage areas, these differences were not statistically significant. Mean debt was greater for those preferring urban areas. This might indicate some relationship of indebtedness and type of physician shortage areas preferred. However, the influences of student background characteristics must not be ignored as possibly more basic determinants of such career preferences.

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* For all students, a t test indicates that this difference is significant: $t = 5.43$ (4588df).

Table 41

Number and Proportion of Medical Students (in Final Year and All Years) Anticipating Debt Upon Graduation and Mean Amount of this Debt by Interest in Physician Shortage Area Practice, 1974-75

Interest in Physician Shortage Area	Final Year			All Years		
	Students Anticipating Debt*		Mean Debt	Students Anticipating Debt†		Mean Debt
	No.	%		No.	%	
TOTAL	1110	68.6	$10,071	4590	66.2	$11,531
Interested	430	73.1	10,900	2298	69.2	12,168
Not Interested	680	66.0	9,548	2292	63.4	10,892

* $\chi^2 = 8.94$ (1*df*), $p < .05$

† $\chi^2 = 26.30$ (1*df*), $p < .05$

Table 42

Number and Proportion of Medical Students (in Final Year and All Years) Anticipating Debt Upon Graduation and Mean Amount of This Debt by Interest in Rural or Urban Physician Shortage Areas, 1974-75

Interest in Rural or Urban Physician Shortage Areas	Final Year			All Years		
	Students Anticipating Debt*		Mean Debt	Students Anticipating Debt †		Mean Debt
	No.	%		No.	%	
TOTAL	370	75.4	$10,071	1961	71.8	$12,168
Urban Area	102	77.3	12,433	557	73.4	13,020
Rural Area	268	74.6	10,416	1404	71.2	11,816

* $\chi^2 = 0.38$ (1*df*), $p > .05$

† $\chi^2 = 1.30$ (1*df*), $p > .05$

6. Practice Environment

One of the barriers to practicing in small private practices may be the costs associated with equipping an office. Students already in debt may be less willing to incur added indebtedness to defray such costs and therefore may prefer to enter group practice or work in an academic health center. (This might be especially true for women, who, as we have seen, tend to be more directed toward hospital-based group practice or academic health centers than are men.)

The data in Table 43, however, do not support the above general hypothesis. No significant differences are present for either final-year students or for students in all years in either the proportions who anticipated debts or in mean debts for those planning to practice in different professional environments.

Table 43

Number and Proportion of Medical Students (in Final Year and All Years) Anticipating Debt Upon Graduation and Mean Amount of This Debt by Practice Environment Plans, 1974-75

Practice Environment Plans	Final Year			All Years		
	Students Anticipating Debt*		Mean Debt	Students Anticipating Debt †		Mean Debt
	No.	%		No.	%	
TOTAL	999	68.6	$10,147	3923	67.8	$11,589
Private individual or two-man partnerships	287	70.9	10,216	1334	66.7	11,691
Private Group Practice	451	71.9	9,685	1568	68.5	11,211
Hospital Group or Academic Health Center	261	63.5	10,873	1021	68.2	12,038

* $\chi^2 = 8.98$ (2*df*), $p < .05$
† $\chi^2 = 1.79$ (2*df*), $p > .05$

D. High Indebtedness, Student Characteristics, and Career Plans

As indicated in Section A, 67 percent of the 7,261 students in the study sample anticipated debts upon graduation from medical school. The mean debt for these students was $11,573. However, 30 percent of this group expected debts of $15,000 or more, 15 percent anticiapted $20,000 or above, and 3 percent foresaw debts of at least $30,000 (see Table 1-A). In terms of all 7,261 respondents, approximately a third anticipated no indebtedness at graduation, another third expected debts of $10,000 or less, and the remaining third anticipated debts of more than $10,000 (see Appendix D). Since it was hypothesized that there might be a closer association between career choice and indebtedness for those with higher levels of anticipated debt, this section focuses on the third who expected graduation debts of more than $10,000.

One of the primary concerns in this study is the extent to which indebtedness is related to those plans involving primary care specialization and physician shortage are practice. In Section C, the proportion of students in debt and the mean debt of these students were examined by interest in the above career choices. As was indicated in that section, proportionally more students with such plans tended to experience debt than students with other plans. In addition, the statistical relationship between indebtedness and career choice appears to be stronger for the primary care and shortage area variables than for the other career variables studied in Section C.

This section continues the examination of the relationship between indebtedness and the specific career plans mentioned above by examining this relationship for students of different backgrounds, particularly those with high levels of anticipated debt.

Table 44 contains data on the proportion of such students who expressed an interest in entering a primary care specialty, while Table 45 focuses on the proportion interested in eventual practice in a physician shortage area. Comparative data are also given for all students responding to those survey questions and for the approximately one third of such students who anticipated no debt at graduation.

In both tables, these data are given for selected student characteristics. Columns 5 and 6 of each table show the difference in the percentage of high-debt and no-debt students and the z statistic which measures the significance of this difference. (Backup data for these tables and data for the remaining third of students with anticipated indebtedness of $10,000 or less appear in Appendix D.) From the information in Tables 44 and 45, answers are sought to the following questions:

- Do the career preferences of students anticipating large debts differ significantly from those of students anticipating no debts?
- For which student characteristics are these differences most pronounced?

Table 44

Interest in Primary Care Among Medical Students Anticipating High Debt (>$10,000) at Graduation as Compared with All Students and with Students Anticipating No Debt, 1974-75

Student Characteristics (1)	Proportion of All Students (2)	Proportion of Students with No Debt (3)	Proportion of Students with High Debt (>$10,000) (4)	Differences Between Cols. 3 and 4 (5)	z Statistic for Difference (6)
TOTAL:					
Maximum N	5,984	1,905	1,917		
Percent Interested	60.5	55.4	63.9	8.5	5.37
Sex:					
Men	59.6	54.4	63.3	8.9	5.06*
Women	65.1	62.0	66.1	4.1	1.08
Race/Ethnicity:					
White/Caucasian	60.8	55.4	64.9	9.5	5.60*
Black/Afro-American	58.1	52.8	59.8	7.0	.76
Other Underrepresented	68.8	55.6	60.5	4.9	.35
Other Ethnic Groups	54.7	55.4	55.9	.5	.09
Marital Status:					
Single	59.5	54.7	63.1	8.4	4.22*
Married, no children	61.0	54.7	65.7	11.0	3.58*
Married, one child	67.8	64.4	70.0	5.6	.83
Married, 2 or more children	61.4	66.7	57.4	-9.3	-1.08
Size of Hometown:					
Large City	54.1	49.8	58.9	9.1	3.76*
Medium or Small-Sized City	61.3	56.1	63.9	7.8	2.97*
Samll Town or Rural Area	73.2	70.1	73.7	3.6	1.07
Parental Income:					
Less than $5,000	65.4	67.4	62.1	-5.3	.65
$5,000 - 9,999	63.7	60.0	61.8	1.8	.31
$10,000 - 19,999	64.7	61.5	65.4	3.9	1.45
$20,000 - 29,999	59.5	57.0	62.7	5.7	1.64
$30,000 - 49,999	55.7	54.8	64.9	10.1	2.27*
$50,000 or more	51.2	48.2	63.4	15.2	2.74*

* z Statistic indicates that difference is statistically significant.

- Which student-characteristic and debt-level combinations are associated with the strongest proportional interest in primary care and physician shortage area practice?

1. Interest in Primary Care

Compared to medical students anticipating no debt at graduation, larger proportions of those anticipating high debts were interested in primary care. Table 44 shows that 55.4 percent of the students in the sample who anticipated no debts were interested in primary care specialties. This compares with 63.9 percent of those anticipating debts of more than $10,000. As indicated by the z statistic, this difference of 8.5 percentage points is statistically significant. The range of z statistics in the table illustrates that for individual student characteristics, the significance of this difference varied greatly. The following analysis of this variation identifies those categories of students for whom high debt was most strongly associated with preferences for primary care specialties.

a. *Sex*

Among women medical students (who generally showed a higher interest in primary care than did men), there was no significant difference in this interest between those anticipating high debts and no debts. The z statistic for the 4.1 percentage point difference is only 1.08. For men, a comparable z of 5.06 was significant. Expressed another way, although men and women with anticipated debts of more than $10,000 showed a higher proportional interest in primary care than those with no debt, this difference was statistically significant only for men.

b. *Race/Ethnicity*

For all ethnic groups, interest in primary care was greater among those anticipating high debts than among those expecting to graduate without debts. As shown in column 6, however, this difference was statistically significant only for whites (z = 5.60). This significantly greater interest in primary care among white students with high debts (64.9 percent) was larger than that for any other debt level and ethnicity combination.

c. *Marital Status*

From the z statistics in column 6, the relationship between high debts and interest in primary care specialties is particularly evident for single students and married students with no children. The greater difference occurred for single students, with 54.7 percent of those anticipating no debts and 63.1 percent of high-debt students planning primary care careers. For married students with one child, who generally showed the highest interest in these specialties (column 2), the difference between the two debt groups was smallest. As shown in columns 5 and 6, for married students with two or more children, the proportion of high-debt students preferring primary care was actually less than for those with no debts, although the difference did not prove statistically significant.

d. *Size of Hometown*

For the total sample, the proportion interested in primary care was highest for students from small towns and rural areas (see column 2). This interest did not differ significantly for these rural students with regard to their level of indebtedness. This would support the hypothesis that for such students, career preferences are more strongly influenced by background than by the amount of debt anticipated at graduation.

For students with urban backgrounds, the proportionately greater interest in primary care among high-debt students differed significantly from such interest among those with no debts. It should be pointed out that these two populations--i.e., urban students with no debt and urban students with high debts--are probably socioeconomically different. Previous analyses in this report of career plans by hometown/income groups showed that urban students from lower income backgrounds (those most likely to incur high debt) showed a stronger preference for primary care specialties.

e. *Parental Income*

With parental income, as was the case for size of hometown, groups with a generally high interest in primary care specialties (i.e., those from lower income backgrounds) showed no significant difference in this interest with regard to the level of indebtedness anticipated at graduation. For students from income backgrounds of $30,000 or more, however, preferences for these careers were significantly greater among students anticipating high debts.

The above analyses of the data in Table 44 reveal considerable variation in the way indebtedness is associated with student characteristics and with preferences for primary care specialties. However, the following general observations can be made:

(1) For those student characteristics which are ordinarily associated with a strong interest in primary care (see column 2), the slightly

greater interest among students anticipating high debts at graduation was not significantly different from the interest among those anticipating no debts. These student characteristic categories include women, minority groups, married students with children, students from rural areas, and students with parental incomes of less than $20,000.

(2) For those characteristics ordinarily associated with a relatively lower interest in primary care, the greater interest among high-debt students was, in most cases, statistically significant. Differences between students anticipating no debts and high debts were found to be significant for students who were male, white, single or married without children, from urban areas, and with high parental incomes.

2. Interest in Physician Shortage Area Practice

Data on the relative proportions of students with high debts who indicated plans to serve in physician shortage areas are given in Table 45. For the total 1974-75 sample, the proportion of students anticipating high debts who were interested in such service (54.3 percent) was significantly greater than that for students foreseeing no indebtedness at graduation (41.4 percent). This difference of 12.9 percentage points was larger than the 8.5 percent difference observed in Table 44 for primary care interest. The degree of association between graduation debt and interest in shortage area practice is examined below for each student characteristic.

a. *Sex*

Although interest in physician shortage areas was generally higher among women students, regardless of debt level, Table 45 shows that for both genders the greater interest among high debt students was statistically significant. In column 6, the z statistics indicate that for men this difference was even greater than for women.

b. *Race/Ethnicity*

For those ethnic groups with a relatively high interest in physician shortage areas (see column 2), the greater interest evidenced among high-debt students did not differ significantly from that of students anticipating no debts at graduation. However, for white students--for whom this interest was comparatively low--the interest in shortage area practice for those

Table 45

Interest in Physician Shortage Area Practice Among Medical Students Anticipating High Debt (>$10,000) at Graduation as Compared with All Students and with Students Anticipating No Debt, 1974-75

Student Characteristics (1)	Proportion of All Students (2)	Proportion of Students with No Debt (3)	Proportion of Students with High Debt (>$10,000) (4)	Differences Between Cols. 3 and 4 (5)	z Statistic for Difference (6)
TOTAL:					
Maximum N	6,983	2,273	2,235		
Percent Interested	47.9	41.4	54.3	12.9	8.66*
Sex:					
Men	65.4	38.8	52.1	13.3	8.07*
Women	59.6	55.4	62.6	7.2	2.05*
Race/Ethnicity:					
White/Caucasian	45.6	40.0	54.2	14.2	7.08*
Black/Afro-American	78.8	73.2	81.9	8.7	1.23
Other Underrepresented	80.4	68.4	81.8	13.4	1.77
Other Ethnic Groups	52.4	49.6	58.5	8.9	1.46
Marital Status:					
Single	50.1	44.5	54.3	9.8	5.36*
Married, no children	42.5	34.8	52.4	17.7	5.96*
Married, one child	50.7	39.0	60.0	21.0	2.90*
Married, 2 or more children	48.2	35.4	54.2	18.8	2.16*
Size of Hometown:					
Large City	44.6	38.8	50.5	11.7	5.38*
Medium or Small-Sized City	45.4	38.4	51.9	13.5	5.46*
Small Town or Rural Area	60.3	57.1	65.6	8.5	2.50*
Parental Income:					
Less than $5,000	65.1	71.7	62.6	-9.1	-1.17
$5,000 - 9,999	53.5	52.2	53.2	1.0	.18
$10,000 - 19,999	51.0	44.8	55.9	11.1	3.81*
$20,000 - 29,999	46.6	39.8	53.8	14.0	4.31*
$30,000 - 49,999	41.0	40.4	46.9	6.5	1.57
$50,000 or more	37.4	35.9	45.6	9.7	1.90*

* z Statistic indicates that difference is statistically significant.

with high debts was 14.2 percentage points greater than for white students without debts. As shown in column 6, this difference is significant (z = 7.08).

c. *Marital Status*

As observable from column 5 of Table 45, interest in physician shortage area practice was substantially greater among high-debt students for all marital status groups--especially married students. For each of the four groups, this difference between students with no debts and high debts was statistically significant, as the z statistics in column 6 show.

d. *Size of Hometown*

For the entire sample, interest in physician shortage areas was relatively higher among rural than urban students (see column 2). Table 45 shows that 65.6 percent of students from these geographic areas who anticipated graduating with debts of more than $10,000 were interested in practicing in underserved areas. For rural students anticipating no debts at graduation, only 57.1 percent stated plans for such service. As shown by the z statistic, this greater interest among high-debt students was significantly different. For students from urban areas, the data in columns 5 and 6 show that this difference with regard to anticipated indebtedness was even greater.

e. *Parental Income*

The relationship between high debt and interest in physician shortage areas among students categorized by parental income is similar to that observed for primary care interest. Although for a particular income group this interest is usually higher for students anticipating high debts, the difference in such interest between those anticipating no debts and high debts at graduation is generally significant only for those students with parental incomes of $10,000 or more.

The data presented in Table 45 reveal that anticipation of large debts at graduation is generally associated with interest in physician shortage area practice. As shown in column 6, the difference between students with no debts and those with large debt is statistically significant in all cases except for nonwhites and students with low parental incomes. For these exceptions, however, the proportions interested in physician shortage areas were relatively large, regardless of anticipated debt level.

From all the analyses in Section D, certain conclusions may be drawn concerning the association of indebtedness and preference for careers in (a) primary care specialties and (b) underserved geographic areas. Generally, preference for these types of careers was higher for students who anticipated substantial amounts of debt (more than $10,000) than for students who anticipated no debt. This association was particularly evident for white students (who constitute almost 90 percent of the sample) and for males (who constitute approximately 83 percent of the sample).

However, the evidence would also indicate that the direct relationship between debt and career choice is weak, since a substantial proportion of students showed an interest in primary care and/or shortage area careers regardless of the amount of anticipated indebtedness. Background characteristics were shown to be important in these choices by identifying groups of individuals for whom no significant differences were found between no-debt and high-debt students. Where significant differences were found, substantial interest in these careers was evident for both no-debt and high-debt students. This suggests the possibility that debt is a result of other background variables rather than a primary determinant of career choice.

Overall, therefore, the data in Section D suggest that student choice of a primary care and/or physician shortage area career is probably related more basically to the student's demographic and background characteristics than to his or her anticipated indebtedness at time of graduation from medical school.

For a concise summary of 15 of the key results that are presented and discussed in Section III of this report, the reader is referred to the "Major Findings" portion of the Executive Summary.

IV. CONCLUSIONS

From the findings reported and discussed in the previous section, and highlighted in the Executive Summary, several conclusions can be drawn. These are listed below and are expressed in terms of the purposes and goals described in the Introduction section of this report:

(1) Although the majority of all medical student groups analyzed in this study (except those from families earning over $50,000 per year) expected to have substantial debts at graduation (averaging $11,573), those anticipating the largest indebtedness tended to be: (a) women, (b) minority group members, (c) married with children, (d) from small towns or rural areas, and (e) from lower-income family backgrounds.

(2) Similarly, although the majority of all groups analyzed expressed a preference for a primary care specialty, those groups with the highest proportional interest in such careers tended to be: (a) women, (b) married men or women with children, (c) from small towns or rural areas, and (d) from lower-income family backgrounds. However, a slightly higher proportion of whites than blacks expressed an interest in entering a primary care specialty.

(3) Likewise, although at least 40 percent of all groups analyzed (except those from families earning $50,000 or more) indicated an interest in working in a physician shortage area, those groups with the highest proportional interest in such service tended to be: (a) women, (b) minority group members, (c) married men or women with children, (d) from small towns or rural areas, and (e) from lower-income backgrounds. Single students also expressed a higher than average proportional interest in shortage area service.

(4) When average anticipated debt upon graduation and future career plans were studied without regard to the personal characteristics noted above, or to extreme levels of indebtedness, there appeared to be little relationship between indebtedness and future plans. Of the eight career variables studied, the only one that showed statistically significant relationships with both the proportion of students in debt and the mean size of their debt was "interest in serving in a physician shortage area." Seniors interested in such a career were somewhat more apt to anticipate higher debts than were seniors not interested in shortage area service.

(5) When a high level of anticipated debt and interest in primary care were studied with regard to personal characteristics, the relationship between indebtedness and such career plans was somewhat stronger but still not very striking. For example, slightly more than 60 percent of both the high debt (over $10,000) and the

low debt ($10,000 or less) students were interested in primary care as compared with 55 percent of those expecting no indebtedness at graduation from medical school.

(6) The student groups which showed the largest differences in the proportion interested in primary care by debt level were: (a) males, (b) men or women without children, (c) from large cities, and (d) from higher-income families. For the above groups these proportions ranged from 8 to 15 percent greater for students with high debts (over $10,000) than for comparable students with no debts.

(7) The strongest relationship between a high level of anticipated debt, career plans and personal characteristics was found for interest in physician shortage area practice. For example, 54 percent of the high-debt (over $10,000) students were interested in such practice, compared with 48 percent of low-debt ($10,000 or under) and 41 percent of those expecting no debt at time of graduation.

(8) A larger proportion of essentially all student groups expressed an interest in shortage area service if they expected a high level of indebtedness than if they expected no debt at graduation. The largest differences in these proportions were for students who were: (a) males, (b) white, (c) married, (d) from cities, and (e) from middle-income families. For the above groups, these proportions ranged from 11 to 21 percent higher for students with high debts (over $10,000) than for comparable students with no debts.

Summarizing the above, it appears that choice of a specific medical career is probably more closely related to a student's biographical and demographic background than to the degree of financial indebtedness he or she anticipates to have at the time of graduation from medical school. In general, those medical students in this study who expressed the highest proportional interest in entering a primary care and/or a shortage area career tended to be: (a) women, (b) members of racial minority groups, (c) from small towns or rural areas, and (d) from lower-income family backgrounds.

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Glossary

ANTICIPATED DEBT -- The total debt a student expects to have accumulated (excluding home loan mortgages) upon graduation from medical school. This dollar amount includes indebtedness upon entrance to medical school plus any debts incurred for medical education as of the date of the survey plus any additional debts anticipated prior to graduation (based on current school costs).

CAREER ACTIVITY -- the type of activity to which a student plans to devote the majority of his or her medical career--e.g., patient care, research, teaching, and administration.

DEMOGRAPHIC GROUPS -- groups of students identified by combinations of race/ethnicity, sex, and marital status--for example, Black/Afro-American single women.

ENVIRONMENT -- refers to the type of practice arrangement--e.g., individual, partnership, private group, hospital-based group, academic health center, federal government service, public health (except federal) and industrial.

HOMETOWN/INCOME GROUPS -- groups of students identified by combinations of hometown size and parental income--for example, students from small town/rural areas (population less than 10,000) with parental incomes between $5,000 and $9,999.

INITIAL DEBT -- the student's total indebtedness upon entrance to medical school.

PHYSICIAN SHORTAGE AREA -- an area, either rural or urban, having a ratio of primary care physicians to population of less than 1 to 4,000. (This was the current DHEW definition at the time of the survey.)

PRIMARY CARE SPECIALTIES -- Family medicine/general practice, general internal medicine, obstetrics/gynecology, and general pediatrics.

RACE/ETHNICITY -- For this study, students are grouped into four racial/ethnic categories. Racial/ethnic groups underrepresented in medicine are divided into Black/Afro-American and "other underrepresented" (including American Indian, Mexican/American or Chicano, and mainland Puerto Rican). The other two groups are White/Caucasian and "other" ethnic (composed mainly of American Orientals).

SPECIALTY CATEGORIES -- In several tables of the report, plans for future specialization are grouped into the following three categories:

1. Primary Care - See above
2. Other Specialties - Anesthesiology, internal medicine (subspecialty), opthalmology, otolaryngology, pediatrics (subspecialty), psychiatry/child psychiatry, radiology, surgery (general and subspecialty), and other known specialty
3. Other - Basic medical sciences, pathology and public health/preventive medicine

APPENDIX A

Composition of National Sample by School

APPENDIX A

Composition of National Sample By School
(Listed alphabetically by state)

Medical School	National Sample (Number of Questionnaires)		
	Monitored*	Non-Monitored	Total
Alabama - Birmingham	3	57	60
South Alabama	3	20	23
Arizona	4	38	42
Arkansas	8	62	70
Calif - San Francisco	0	86	86
Calif - Los Angeles	10	80	90
Calif - Irvine	5	37	42
Loma Linda	0	88	88
Southern California	5	66	71
Stanford	8	50	58
Calif - San Diego	1	40	41
Calif - Davis	5	56	61
Colorado	10	68	78
Connecticut	0	34	34
Georgetown	6	97	103
George Washington	8	79	87

Composition of National Sample By School

Medical School	National Sample (Number of Questionnaires)		
	Monitored*	Non-Monitored	Total
Howard	0	65	65
Florida	0	53	53
Miami	0	11	11
South Florida	3	19	22
†Florida State	1	4	5
Emory	8	55	63
Med Col of Georgia	3	89	92
Hawaii	0	41	41
Chicago Medical	0	57	57
Univ of Chicago	6	62	68
Illinois	6	168	174
Loyola	7	52	59
Northwestern	0	95	95
Southern Illinois	2	17	19
Rush	3	40	43
Indiana	0	122	122
Iowa	0	98	98
Kansas	8	66	74
Kentucky	0	62	62
Louisville	5	75	80

Composition of National Sample By School

Medical School	National Sample (Number of Questionnaires)		
	Monitored*	Non-Monitored	Total
LSU - New Orleans	7	81	88
Tulane	9	80	89
LSU - Shreveport	0	14	14
Johns Hopkins	7	64	71
Maryland	2	91	93
Boston	9	67	76
Tufts	0	62	62
Massachusetts	0	23	23
Univ of Michigan	0	142	142
Wayne State	8	137	145
Michigan State	8	48	56
Minnesota - Minneapolis	17	128	145
Minnesota - Duluth	0	9	9
Mayo	2	16	18
Mississippi	15	59	74
Missouri - Columbia	4	61	65
St. Louis	5	85	90
Washington Univ - St Louis	1	80	81
Missouri - Kansas	3	21	24
Creighton	6	60	66
Nebraska	6	74	80

Composition of National Sample By School

Medical School	National Sample (Number of Questionnaires)		
	Monitored*	Non-Monitored	Total
Nevada	0	14	14
Dartmouth	0	24	24
CMDNJ - New Jersey	2	69	71
CMDNJ - Rutgers	0	44	44
New Mexico	2	38	40
Albany	4	60	64
SUNY - Buffalo	0	81	81
Columbia	1	85	86
Cornell	0	62	62
Albert Einstein	3	70	73
SUNY - Downstate	0	85	85
New York Medical	0	91	91
New York University	0	99	99
Rochester	3	56	59
SUNY - Upstate	1	71	72
Mt. Sinai	3	39	42
Bowman Gray	0	52	52
Duke	0	69	69
North Carolina	8	63	71
§East Carolina	1	2	3
North Dakota	4	22	26

Composition of National Sample By School

Medical Schools	National Sample (Number of Questionnnaires)		
	Monitored*	Non-Monitored	Total
Cincinnati	0	83	83
Ohio State	15	94	109
Case Western Reserve	6	80	86
Ohio at Toledo	1	29	30
Oklahoma	5	84	89
Oregon	5	61	66
Hahnemann	0	81	81
Jefferson	12	120	132
Univ of Pennsylvania	12	86	98
Pittsburgh	9	68	77
Temple	0	99	99
Medical College of Pa	6	48	54
Penn State	0	49	49
Brown	1	35	36
South Carolina	0	60	60
South Dakota	4	15	19
Meharry	1	61	62
Tennessee	11	80	91
Baylor	11	76	87
Texas - San Antonio	4	66	70
Texas - Southwestern	0	94	94

Composition of National Sample By School

Medical School	National Sample (Number of Questionnaires)		
	Monitored*	Non-Monitored	Total
Texas - Galveston	0	102	102
Texas - Houston	1	21	22
Texas Tech	0	20	20
Virginia	4	68	72
Med Col of Virginia	10	77	87
Eastern Virginia	1	8	9
Univ of Washington - Seattle	9	65	74
West Virginia	6	44	50
Med Col of Wisconsin	8	65	73
Univ of Wisconsin	6	82	88
Puerto Rico	0	47	47
TOTAL	417	6,844	7,261

* Questionnaires for the monitored subsample were screened by school officials to check the accuracy of student responses

† Combined with Florida for most AAMC reports

§ Combined with North Carolina for most AAMC reports

APPENDIX B

Survey Instrument

ASSOCIATION OF AMERICAN MEDICAL COLLEGES
SURVEY OF HOW MEDICAL STUDENTS FINANCE THEIR EDUCATION

☐

DIRECTIONS: Please answer all questions by checking the appropriate box or entering the correct figures as indicated. Results of this survey will be used to identify critical problems in financing of medical school education, so it is important that you answer as frankly and accurately as you can and estimate where exact values are not available. When you have completed the questionnaire, return it in the enclosed envelope. No postage is necessary.

CONFIDENTIALITY: The identification number on your questionnaire is needed by the project staff to process returned questionnaires. You in no way can be identified as an individual and your answers will be strictly anonymous.

I. BIOGRAPHICAL

Information in this section will be used to examine relationship between financial needs and selected background characteristics. Please answer all questions carefully and completely.

1. State of legal residence ________________

2. Date entered medical school [MO | YR]

3. Date expected to receive M.D. degree: [MO | YR]

4. Class level:

Length of program in which you are now enrolled (years): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Current year: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

5. Age: [ ] 6. Sex: Male ☐ 1 Female ☐ 2

7. Marital Status:

Never Married ☐ 1 Married ☐ 2 Widowed ☐ 3
Divorced ☐ 4 Separated ☐ 5

8. Number of (your own) children:

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 or more

Number of other dependents (excluding yourself and your spouse): ☐ 0 ☐ 1 ☐ 2 ☐ 3 or more

9. Citizenship: U.S. ☐ 1 Permanent resident visa ☐ 2
☐ 3 Other (specify) ________________

10. Self-Description:

☐ 1. Black/Afro-American
☐ 2. American Indian
☐ 3. White/Caucasian
☐ 4. Mexican/American or Chicano
☐ 5. Oriental/Asian-American
☐ 6. Puerto Rican (Mainland)
☐ 7. Puerto Rican (Commonwealth)
☐ 8. Cuban
☐ 9. Other (specify) ________________

GO TO THE SECOND COLUMN ON THIS PAGE

11. Parents' occupation during major part of 1974 (if deceased or retired, mark under "a" and indicate under "b" major occupation prior to retirement or death).

	Father	Mother
a. Retired	1 ☐	1 ☐
Deceased	2 ☐	2 ☐
b. Clerical worker	1 ☐	1 ☐
Farmer, farm manager	2 ☐	2 ☐
Farm foreman, farm laborer	3 ☐	3 ☐
Health worker — dentist, optometrist, pharmacist, podiatrist, veterinarian	4 ☐	4 ☐
Health worker—physician (M.D., D.O.)	5 ☐	5 ☐
Health worker—other than above	6 ☐	6 ☐
Homemaker	7 ☐	7 ☐
Owner, manager, administrator (non-farm)	8 ☐	8 ☐
Professional, non-health-related (e.g., clergyman, engineer, lawyer, teacher, etc.)	9 ☐	9 ☐
Sales worker	10 ☐	10 ☐
Skilled worker, craftsman	11 ☐	11 ☐
Transport or equipment operator	12 ☐	12 ☐
Unskilled worker, laborer, private household worker (non-farm)	13 ☐	13 ☐

12. Parent's **highest** education level:

	Father	Mother
Eighth grade or less	1☐	1☐
Some high school	2☐	2☐
Completed high school	3☐	3☐
Specialized business or technical training	4☐	4☐
Some college	5☐	5☐
Completed college	6☐	6☐
Some graduate or professional school	7☐	7☐
Completed graduate or professional school	8☐	8☐

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13. Number of individuals other than yourself who are dependent on your parents for financial support: ______

14. Parents' estimated gross income for 1974:

1 ☐ Less than $5,000
2 ☐ $ 5,000 - 7,499
3 ☐ $ 7,500 - 9,999
4 ☐ $10,000 - 12,499
5 ☐ $12,500 - 14,999
6 ☐ $15,000 - 19,999
7 ☐ $ 20,000 - 24,999
8 ☐ $ 25,000 - 29,999
9 ☐ $ 30,000 - 49,999
10 ☐ $ 50,000 - 99,999
11 ☐ $100,000 - or more

15. Where did you spend the major portion of your pre-college years? (Mark only one that *best* describes the area.)

☐ 1 Large City (population 500,000 or more)
☐ 2 Suburb of a large city
☐ 3 City of moderate size (population 50,000-500,000)
☐ 4 Small city (population 10,000 - 50,000)
☐ 5 Small town (population less than 10,000)
☐ 6 Farm, rural or unincorporated area

NOTE: Because your answers regarding resources, expenses and indebtedness are critical to the validity of this survey, please enter your responses carefully in Sections II, III and IV. For example, the entry for $1500.00 should be $| |1|5|0|0|.00 and not $|1|5|0|0|0|.00 or $| | |1|5|0|.00

II. RESOURCES

Information in this section will be used to summarize the resources which are currently available to medical students for education and living. Please estimate as accurately as you can the amounts of money you received or expect to receive from any source **during the current year** (July 1, 1974 to June 30, 1975).

16. Did you apply for financial aid for the current school year via your medical school? ☐ 1 Yes ☐ 2 No

Did you apply for financial aid for the current school year via other sources? ☐ 1 Yes ☐ 2 No

Show below the amounts of money which have become or will be available to you to meet your expenses in the year beginning July 1, 1974 and ending June 30, 1975. (Please indicate in whole dollars).

Earnings and Income Before Taxes
(July 1, 1974 to June 30, 1975)

17. Your earnings—from employment $| | | | | |.00
18. Armed Forces active duty or reserve pay $| | | | | |.00

GO TO THE SECOND COLUMN ON THIS PAGE

19. Spouse's earnings/income $| | | | | |.00
20. Income from savings, trusts, stocks, bonds, investments. $| | | | | |.00
21. Other earnings (specify) $| | | | | |.00

Gifts (July 1, 1974 to June 30, 1975)

22. Parents' and relatives' contributions $| | | | | |.00
23. Spouse's parents' and/or relatives' contributions $| | | | | |.00
24. Other Gifts (Specify) ____________ $| | | | | |.00

Scholarships, Grants, and Other Non-Repayable Funds
(July 1, 1974 to June 30, 1975)

25. Federal Health Professions Scholarship Program $| | | | | |.00
26. Robert Wood Johnson Scholarship $| | | | | |.00
27. Grant(s) from school funds (Including tuition remission or waiver) $| | | | | |.00
28. Veterans benefits $| | | | | |.00
29. Public Health Service Scholarship $| | | | | |.00
30. Physician Shortage Area Scholarship $| | | | | |.00
31. Armed Forces Health Professions Scholarship Program $| | | | | |.00
32. NIH-supported research fellowship or traineeship, research grant, clinical fellowship, etc. $| | | | | |.00
33. State/State Medical Society Scholarship $| | | | | |.00
34. Other (specify) ____________ $| | | | | |.00

Loans and Other Repayable Funds
(July 1, 1974 to June 30, 1975)

35. Federal Health Professions Student Loan $| | | | | |.00
36. National Direct Students Loan/ National Defense Education Student Loan $| | | | | |.00
37. Guranteed school loan (where the school is the authorized lender) $| | | | | |.00
38. School loan (not guaranteed by state or federal government) $| | | | | |.00
39. Robert Wood Johnson Loan $| | | | | |.00
40. Private bank loan (not guaranteed by state or federal government) $| | | | | |.00
41. Guaranteed (insured) student bank loan $| | | | | |.00
42. American Medical Association Education and Research Foundation (AMA-ERF) loan $| | | | | |.00

GO TO THE NEXT PAGE

43. Family loan $| | | | | |.00

44. Personal loan (from an individual other than family) $| | | | | |.00

45. Other (specify) ______________ $| | | | | |.00

Other Resources

46. Any other resources you have available for meeting medical school expenses for the 1974-75 school year (e.g. trusts, savings accounts, etc.) (Specify)______________ $| | | | | |.00

______________ $| | | | | |.00

______________ $| | | | | |.00

______________ $| | | | | |.00

III. ANNUAL EXPENSES

Please estimate as accurately as you can the total amount (in dollars) that you have spent or expect to spend for yourself and your dependents during the year beginning July 1, 1974 and ending June 30, 1975.

Education Expenses (Your Own)

47. Tuition and Fees $| | | | | |.00

48. Books, Instruments and Equipment $| | | | | |.00

Other Expenses (Yours and Dependents)

49. Lodging (rent, house payment, home maintenance, etc.) $| | | | | |.00

50. Food $| | | | | |.00

51. Clothing $| | | | | |.00

52. Health Care $| | | | | |.00

53. Transportation (including auto expenses) $| | | | | |.00

54. Other Expenses (entertainment, spouses' educational expenses, taxes, etc.) $| | | | | |.00

IV. INDEBTEDNESS

55. Home loan mortgage (if any) $| | | | | |.00

Please estimate your total indebtedness in dollars (excluding home mortgage):

56. Total Indebtedness upon entrance to medical school $| | | | | |.00

57. Current indebtedness (as of June 30, 1975) $| | | | | |.00

58. Anticipated indebtedness upon graduation (based on current school costs) $| | | | | |.00

GO TO THE SECOND COLUMN ON THIS PAGE

V. EMPLOYMENT

Please indicate employment (if any) during the 1974-75 school year.

59. Average number of hours per week you worked during school vacation |____|

60. Average number of hours per week you worked while actually attending school |____|

61. Average number of hours per week your spouse worked |____|

VI. CAREER PLANS

Your answers in this section will provide information regarding relationships between career plans and student financing. Although your plans may be somewhat tentative at this time, please be as specific as you can in indicating your present plans or preferences for your future career.

62. Please indicate the type of **activity** listed below to which you plan to devote the majority of your medical career. (Mark only one)

☐ 1. Patient care
☐ 2. Research
☐ 3. Teaching
☐ 4. Administration
☐ 5. Other (specify) ______________
☐ 6. Undecided

63. Please indicate the type of **environment** you now contemplate for the majority of your medical career. (Mark only one.)

☐ 1. Individual practice
☐ 2. Partnership practice
☐ 3. Private group practice
☐ 4. Hospital-based group practice (except federal)
☐ 5. Academic health center
☐ 6. Federal government service
☐ 7. Public health (except federal)
☐ 8. Industrial
☐ 9. Other (specify) ______________
☐ 10. Undecided

GO THE NEXT PAGE

64. Please indicate your present plans concerning **specialization** by choosing one of the following: (Mark only one.)

☐ 1. Anesthesiology
☐ 2. Basic Medical Science
☐ 3. Family Medicine/General Practice
☐ 4. Internal Medicine – general
☐ 5. Internal Medicine – subspecialty
☐ 6. Obstetrics/Gynecology
☐ 7. Ophthalmology
☐ 8. Otolaryngology
☐ 9. Pathology
☐ 10. Pediatrics – general
☐ 11. Pediatrics – subspecialty
☐ 12. Psychiatry/Child Psychiatry
☐ 13. Public health/Preventive medicine
☐ 14. Radiology
☐ 15. Surgery – general
☐ 16. Surgery – subspecialty
☐ 17. Other known specialty (specify)_____________
☐ 18. Plan to Specialize – Specialty Not Known
☐ 19. Undecided

65. How many years do you presently plan in residency/intern training?

☐ 1 ☐ 4
☐ 2 ☐ 5
☐ 3 ☐ 6
☐ Unknown

GO TO THE SECOND COLUMN ON THIS PAGE

66. Please indicate the type of area in which you are currently most interested in eventually locating (after completing military or other required service).

(Mark only **one** that best describes the area.)

☐ 1. Large city (population 500,000 or more)
☐ 2. Suburb of a large city
☐ 3. City of moderate size (population 50,000 to 500,000)
☐ 4. Small city (population 10,000 to 50,000)
☐ 5. Small town (population less than 10,000)
☐ 6. Rural/unincorporated area
☐ 7. Undecided

67. Are you interested in locating (other than to fulfill service commitment) in a critically underserved area (current DHEW definition of physician shortage area includes primary care physicians to population ratio of less than 1 to 4,000)?

☐ Yes 1 ☐ No 2

If yes, please indicate preferred nature of area:

☐ Rural 1
☐ Urban 2
☐ No preference 3

VII. **COMMENTS** Enter any comments you may wish to make regarding the financing of your medical education:

APPENDIX C

Cumulative Frequency Distribution of Pre-Graduation Indebtedness Anticipated by U.S. Medical Students, 1974-75
(Cumulated Downward)

APPENDIX C

Cumulative Frequency Distribution of Pre-Graduation Indebtedness Anticipated by U.S. Medical Students, 1974-75 (Cumulated Downward)

Anticipated Mean Debt	Number of Students	Percent of Students	Anticipated Mean Debt	Cumulative Frequency	
				Number	Percent
$1 - 999	91	1.87	$1 or more	4,859	100.00
$1,000 - 1,999	190	3.91	$1,000 " "	4,768	98.13
$2,000 - 2,999	229	4.71	$2,000 " "	4,578	94.22
$3,000 - 3,999	219	4.51	$3,000 " "	4,349	89.50
$4,000 - 4,999	209	4.30	$4,000 " "	4,130	85.00
$5,000 - 5,999	242	4.98	$5,000 " "	3,921	80.70
$6,000 - 6,999	263	5.41	$6,000 " "	3,679	75.72
$7,000 - 7,999	233	4.80	$7,000 " "	3,416	70.30
$8,000 - 8,999	257	5.29	$8,000 " "	3,183	65.51
$9,000 - 9,999	183	3.77	$9,000 " "	2,926	60.22
$10,000 - 10,999	513	10.56	$10,000 " "	2,743	56.45
$11,000 - 11,999	151	3.11	$11,000 " "	2,230	45.89
$12,000 - 12,999	319	6.57	$12,000 " "	2,079	42.79
$13,000 - 13,999	143	2.94	$13,000 " "	1,760	36.22
$14,000 - 14,999	169	3.48	$14,000 " "	1,617	33.28
$15,000 - 15,999	299	6.15	$15,000 " "	1,448	29.80
$16,000 - 16,999	139	2.86	$16,000 " "	1,149	23.65
$17,000 - 17,999	104	2.14	$17,000 " "	1,010	20.79
$18,000 - 18,999	116	2.39	$18,000 " "	906	18.65
$19,000 - 19,999	40	.82	$19,000 " "	790	16.26

- continued

APPENDIX C (cont'd)

Cumulative Frequency Distribution of Pre-Graduation Indebtedness Anticipated by U.S. Medical Students, 1974-75 (Cumulated Downward)

Anticipated Mean Debt	Number of Students	Percent of Students	Anticipated Mean Debt	Cumulative Frequency	
				Number	Percent
$20,000-20,999	246	5.06	$20,000 or more	750	15.44
$21,00-21,999	44	.91	$21,000 " "	504	10.37
$22,000-22,999	65	1.34	$22,000 " "	460	9.47
$23,000-23,999	26	.54	$23,000 " "	395	8.13
$24,000-24,999	47	.97	$24,000 " "	369	7.59
$25,000-25,999	98	2.02	$25,000 " "	322	6.63
$26,000-26,999	18	.37	$26,000 " "	224	4.61
$27,000-27,999	14	.29	$27,000 " "	206	4.24
$28,000-28,999	19	.39	$28,000 " "	192	3.95
$29,000-29,999	10	.21	$29,000 " "	173	3.56
$30,000-30,999	57	1.17	$30,000 " "	163	3.35
$31,000-31,999	13	.27	$31,000 " "	106	2.18
$32,000-32,999	7	.14	$32,000 " "	93	1.91
$33,000-33,999	6	.12	$33,000 " "	86	1.77
$34,000-34,999	2	.04	$34,000 " "	80	1.65
$35,000-35,999	78	1.61	$35,000 " "	78	1.61
TOTAL	4,859 *	100.00	----	----	----

* Represents 66.9 percent of the 7,261 students in the national sample.

APPENDIX D

Table D-1: Interest in Primary Care Among Medical Students by Level of Indebtedness Anticipated at Graduation, 1974-75

Table D-2: Interest in Physician Shortage Area Practice Among Medical Students by Level of Indebtedness Anticipated at Graduation, 1974-75

Table D-1

Interest in Primary Care Among Medical Students by Level of Indebtedness Anticipated at Graduation, 1974-75

Student Characteristics	No Debt			Debt ≤ $10,000			Debt > $10,000			All Debt Levels		
	Total	No. Interested	% Interested	Total	No. Interested	% Interested	Total	No. Interested	% Interested	Total	No. Interested	% Interested
TOTAL	1,905	1,055	55.4	2,162	1,341	62.0	1,917	1,225	63.9	5,984	3,621	60.5
Sex:												
Men	1,616	879	54.4	1,826	1,118	61.2	1,533	970	63.3	4,975	2,967	59.6
Women	276	171	62.0	328	219	66.8	380	251	66.1	984	641	65.1
Race/Ethnicity:												
White/Caucasian	1,739	964	55.4	1,943	1,210	62.3	1,629	1,057	64.9	5,311	3,231	60.8
Black/Afro-American	36	19	52.8	85	49	57.6	132	79	59.8	253	147	58.1
Other Underrepresented	18	10	55.6	37	31	83.8	38	23	60.5	93	64	68.8
Other Ethnic Groups	112	62	55.4	97	51	52.6	118	66	55.9	327	179	54.7
Marital Status:												
Single	1,206	660	54.7	1,115	675	60.5	1,237	781	63.1	3,558	2,116	59.5
Married, no children	578	316	54.7	810	509	62.8	452	297	65.7	1,840	1,122	61.0
Married, one child	73	47	64.4	166	112	67.5	127	89	70.0	366	248	67.8
Married, 2 or more children	48	32	66.7	71	45	63.4	101	58	57.4	220	135	61.4
Size of Hometown:												
Large City	872	434	49.8	866	466	53.8	822	484	58.9	2,560	1,384	54.1
Medium or Small Sized City	726	407	56.1	852	544	63.8	654	418	63.9	2,232	1,369	61.3
Small Town or Rural Area	301	211	70.1	443	331	74.7	437	322	73.7	1,181	864	73.2
Parental Income:												
Less than $5,000	43	29	67.4	118	82	69.5	177	110	62.1	338	221	65.4
$5,000 - 9,000	95	57	60.0	239	161	67.4	288	178	61.8	622	396	63.7
$10,000 - 19,999	377	232	61.5	871	566	65.0	731	482	65.4	1,979	1,280	64.7
$20,000 - 29,999	386	220	57.0	489	288	58.9	405	254	62.7	1,260	762	59.5
$30,000 - 49,999	429	235	54.8	272	140	51.5	171	111	64.9	872	486	55.7
$50,000 or more	515	248	48.2	130	71	54.6	91	58	63.4	736	377	51.2

Table D-2

Interest in Physician Shortage Area Practice Among Medical Students by Level of Indebtedness Anticipated at Graduation, 1974-75

Student Characteristics	No Debt			Debt ≤ $10,000			Debt > $10,000			All Debt Levels		
	Total	No. Interested	% Interested	Total	No. Interested	% Interested	Total	No. Interested	% Interested	Total	No. Interested	% Interested
TOTAL	2,273	941	41.4	2,475	1,188	48.0	2,235	1,213	54.3	6,983	3,342	47.9
Sex:												
Men	1,918	745	38.8	2,074	947	45.7	1,766	920	52.1	5,758	2,612	45.4
Women	343	190	55.4	392	235	59.9	462	289	62.6	1,197	714	59.6
Race/Ethnicity:												
White/Caucasian	2,082	833	40.0	2,211	1,018	46.0	1,907	976	51.2	6,200	2,827	45.6
Black/Afro-American	41	30	73.2	98	75	76.5	149	122	81.9	288	227	78.8
Other Underrepresented	19	13	68.4	39	33	84.6	44	36	81.8	102	82	80.4
Other Ethnic Groups	131	65	49.6	127	62	48.8	135	79	58.5	393	206	52.4
Marital Status:												
Single	1,502	669	44.5	1,315	681	51.8	1,487	808	54.3	4,304	2,158	50.1
Married, no children	646	225	34.8	907	385	42.4	496	260	52.4	2,049	870	42.5
Married, one child	77	30	39.0	180	87	48.3	145	87	60.0	402	204	50.7
Married, 2 or more children	48	17	35.4	73	35	47.9	107	58	54.2	228	110	48.2
Size of Hometown:												
Large City	1,064	412	38.8	1,001	450	45.0	994	502	50.5	3,059	1,364	44.6
Medium or Small Sized City	860	330	38.4	982	457	46.5	751	390	51.9	2,593	1,177	45.4
Small Town or Rural Area	340	194	57.1	490	280	57.1	486	319	65.6	1,316	793	60.3
Parental Income:												
Less than $5,000	46	33	71.7	143	95	66.4	206	129	62.6	395	257	65.1
$5,000 - 9,999	113	59	52.2	268	146	54.5	327	174	53.2	708	379	53.5
$10,000 - 19,999	442	198	44.8	974	482	49.5	860	481	55.9	2,276	1,161	51.0
$20,000 - 29,999	470	187	39.8	559	259	46.3	470	253	53.8	1,499	699	46.6
$30,000 - 49,999	502	203	40.4	320	122	38.1	207	97	46.9	1,029	422	41.0
$50,000 or more	627	225	35.9	161	61	37.9	103	47	45.6	891	333	37.4

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